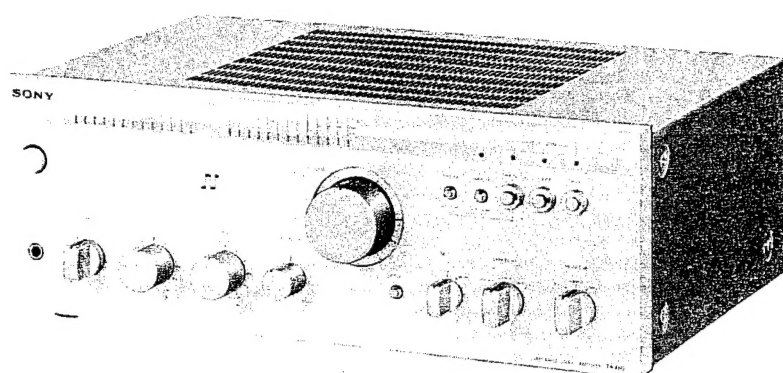


TA-F60

US Model
Canadian Model
AEP Model
UK Model
PX Model



INTEGRATED STEREO AMPLIFIER



SPECIFICATIONS


GENERAL

| | |
|----------------------------|---|
| Power Requirements: | 120 V ac, 60 Hz (US, Canadian model) 220 V ac ~, 50/60 Hz (AEP model) 240 V ac ~, 50/60 Hz (UK model) 110, 120, 220 or 240 V ac, 50/60 Hz (PX model) |
| Power Consumption: | 120 W (US model) 190 W (Canadian model) 310 W (AEP, PX model) 420 W (UK model) |
| Dimensions: | Approx. 430 (w) x 155 (h) x 340 (d) mm 17 (w) x 6 ¹ / ₈ (h) x 13 ¹ / ₂ (d) inches including projecting parts and controls |
| Weight: | Approx. 6.7 kg, 14 lb 12 oz (net) Approx. 7.7 kg, 17 lb (in shipping carton) |


POWER AMPLIFIER SECTION

| | |
|--|--|
| Power Output and Total Harmonic Distortion: | With 8 Ω loads, both channels driven, from 20–20,000 Hz; rated 75 W per channel minimum RMS power, with no more than 0.01 % total harmonic distortion from 250 mW to rated output. (US, Canadian model) |
| Continuous RMS Power Output: (Less than 0.01 % THD, both channels driven simultaneously) | At 20 Hz–20 kHz 75 W + 75 W (8 Ω) According to DIN 45500 75 W + 75 W (8 Ω) (AEP, UK, PX model) |
| Power Bandwidth (IHF): | 5 Hz – 30 kHz (37.5 W output, 0.01 % THD, 8 Ω) (AEP, UK, PX model) |
| Harmonic Distortion: | Less than 0.01 % at rated output Less than 0.008 % at 10 W output |
| Intermodulation (IM) Distortion: (60 Hz : 7 kHz = 4 : 1) | Less than 0.01 % at rated output Less than 0.008 % at 10 W output |

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ:

LES COMPOSANTS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE  SUR LES DIAGRAMMES SCHEMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY.

— Continued on next page —

SONY
SERVICE MANUAL

TA-F60

Residual Noise: Less than 150 μ V (8 Ω , network A)

Damping Factor: 40 (8 Ω , 1 kHz)

Outputs: SPEAKER terminals A, B
Accept speakers of 8 – 16 Ω
HEADPHONES jack
Accepts low and high-impedance stereo headphones

PREAMPLIFIER SECTION

Frequency Response: PHONO: RIAA equalization curve ± 0.2 dB
TUNER
AUX
TAPE 1, 2) 3 – 70,000 Hz $^{+0}_{-1}$ dB

Tone Controls: BASS
 ± 10 dB at 60 Hz
(turnover frequency 300 Hz)
TREBLE
 ± 10 dB at 25 kHz
(turnover frequency 5 kHz)

Filters: LOW
6 dB/octave attenuation below 15 Hz

Loudness: +10 dB at 60 Hz, +6 dB at 25 kHz
(att. 30 dB)

Inputs:

| | Sensitivity | Impedance | Phono overload (1 kHz) | S/N (weighting network, input level) |
|---------------------------|-------------------|---------------|------------------------|--------------------------------------|
| PHONO (MC) | 0.25 mV (–70 dB) | 100 Ω | 25 mV (–30 dB) | 75 dB (A, 0.25 mV) |
| PHONO 2 (MM) | 2.5 mV (–50 dB) | 50 k Ω | 250 mV (–10 dB) | 88 dB (A, 2.5 mV) |
| TUNER AUX TAPE 1, 2 | 150 mV (–14.5 dB) | 50 k Ω | — | 100 dB (A, 150 mV) |

Outputs:

| | Voltage | Impedance |
|--------------|---------------------------------------|----------------|
| REC OUT 1, 2 | 150 mV (–14.5 dB) (13.5 V at max.) | 4.7 k Ω |

0 dB = 0.775 V

MODEL IDENTIFICATION

– Specification Label –

US model

| | |
|--------------|---|
| SONY® | INTEGRATED STEREO AMPLIFIER Model NO. TA-F60 |
| AC 120 V | 60 Hz 120 W |
| SERIAL NO. | |
| | MADE IN JAPAN |

UK model

| | |
|--------------|---|
| SONY® | INTEGRATED STEREO AMPLIFIER Model NO. TA-F60 |
| AC 240 V ~ | 50/60 Hz 420 W |
| SERIAL NO. | |
| | MADE IN JAPAN |

Canadian model

| | |
|--------------|---|
| SONY® | INTEGRATED STEREO AMPLIFIER Model NO. TA-F60 |
| AC 120 V | 60 Hz 190 W |
| SERIAL NO. | |
| | MADE IN JAPAN |

PX1 model

| | |
|---------------------------|---|
| SONY® | INTEGRATED STEREO AMPLIFIER Model NO. TA-F60 |
| AC 110, 120, 220, 240 V ~ | 50/60 Hz 310 W |
| SERIAL NO. | |
| | MADE IN JAPAN |

AEP model

| | |
|--------------|---|
| SONY® | INTEGRATED STEREO AMPLIFIER Model NO. TA-F60 |
| AC 220 V ~ | 50/60 Hz 310 W |
| SERIAL NO. | |
| | MADE IN JAPAN |

PX2 model

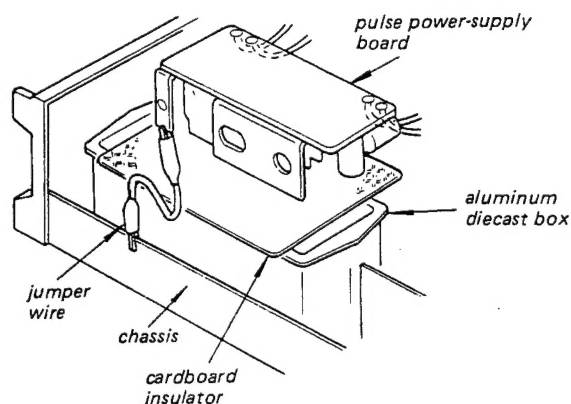
| | |
|-------------|---|
| ASCO | SONY® INTEGRATED STEREO AMPLIFIER Model NO. TA-F60 |
| | AC 110, 120, 220, 240 V ~ 50/60 Hz 310 W |
| | SERIAL NO. |
| | MADE IN JAPAN |

SERVICING NOTE

1. PULSE POWER SUPPLY BOARD REPAIRING

This set has a pulse power-supply circuit which is quite different from a conventional power-supply circuit. The pulse power supply directly rectifies and smooths the ac input power to produce the higher dc voltages required in the power supply circuit. When servicing this set, note the following.

- To prevent unwanted radiation due to pulse signals in the pulse power-supply circuit, the pulse power-supply board is shielded by the aluminum diecast box.
- The negative circuit of the secondary rectifier in the pulse power-supply circuit is grounded by screws in the aluminum diecast box. When checking the pulse power-supply board out of the box, use a jumperwire and a cardboard insulator as shown on the right.



- Take care that electrolytic capacitor C414 which is used after the rectification of ac power source voltage is charged even if the POWER switch is turned off. Be sure to use a resistor of at least several hundred ohms to discharge the capacitor. Direct discharge by means of lead is dangerous.

3. INVERTER CIRCUIT TRANSISTOR REPLACEMENT (Q903–906)

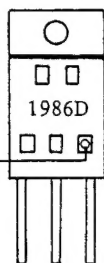
When replacing Q903–Q906 in the pulse power-supply circuit, use those which have the same hFE rank and color code.

US, Canadian model

Q903–906

2SC1968D-O --- O

hFE rank



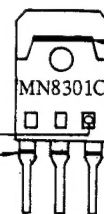
Color Code
(black
blue
green
red)

AEP, UK, PX model

Q903, 904

MN8301C --- O

hFE rank



Color Code
(black
blue
green
red)

MEMOThis image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

SECTION 1

OUTLINE

1-1. HEAT PIPE

Model TA-F60 uses a heat pipe as the heat conduction element for dissipating the heat generated by the power transistors. The principle and construction of the heat pipe are described below.

The heat pipe is a conduction element of superior thermal conduction characteristics designed for disposing of the heat in connection with spacecraft and aircraft. It is composed of special fluid enclosed in an airtight container, which has a reduced internal pressure.

The operation principle of the heat pipe is illustrated in Fig. 1. One end of the pipe is the heat input section (evaporation section), and the other end is the heat output section (condensation section). As heat is applied to the heat input section, the fluid in that section is evaporated and conveyed to the heat output section. Since it radiates heat, the vapor in the heat output section condenses, restores the state of fluid and returns to the heat input section. The cycle of the above processes is performed continuously. As a result, heat conduction is possible at a very high velocity.

The apparent thermal conductivity of the heat pipe used as the conduction element for the heat dissipation of power transistor is several hundred times as high as that of the aluminum or copper conventionally used as the material of heat sink. For this reason, a heat pipe has a cooling capacity 50 % higher than a heat sink. Use of the heat pipe also permits the power transistor to be cooled without detaching it from the circuit board, and as the result, the electromagnetic waves generated by the large signal current flowing in the leads are much decreased, and the distortion factor characteristic and signal-to-noise ratio of the power amplifier are improved.

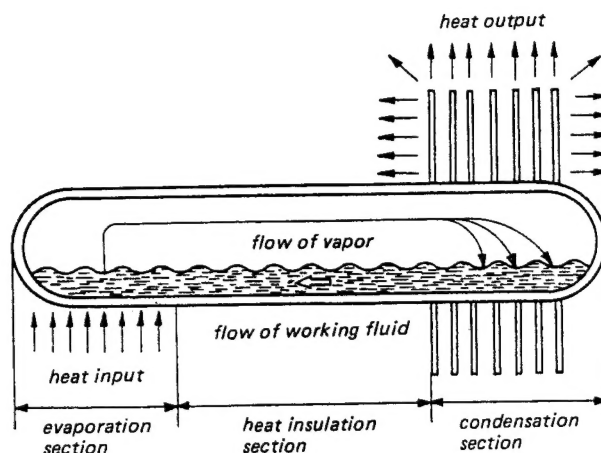


Fig. 1

1-2. LED PEAK LEVEL METER CIRCUIT

For indication of the output power, Model TA-F60 uses light-emitting diodes (LED). This LED peak level meter is described below.

- (1) When the power switch is turned on, LED D111-1 (0 W) is lit.
- (2) The input signal is logarithmically compressed by operational amplifier IC103 according to the square-law characteristic of diodes D108 and D109.
- (3) The logarithmically compressed input signal is rectified by D110 and charges C169 for peak detection.
- (4) The anode voltage of diode D310 as divided by means of R316, R317 and R318 is applied as a reference voltage to the terminals (3) and (20) of IC104.
- (5) The reference voltage is divided into 12 parts by means of R1 to R13 in IC104, and the 12 divisional voltages are applied as the reference voltages for the LED-driving differential amplifiers, respectively.
- (6) If there is an input signal of, for example, 0.005 W in output power, the voltage to which C169 is charged with the logarithmically compressed and rectified input signal is applied to the terminal (21) of IC104, making the base voltage of Q2 higher than the base voltage (reference voltage) of Q1. This causes the collector voltage of Q2 to decrease. Then, the LED driving circuit turns on to light LED D111-2 (0.005 W). The other LEDs D111-3, D111-4, are not lit because the base voltages (reference voltages) of Q3, Q5, are higher than the base voltages of Q4, Q6, . . . , respectively.
- (7) As in the foregoing, the peak level voltage charged in C169 is compared with the reference voltage in each LED-driving differential amplifier, and if the peak level voltage becomes higher than the reference voltage, the corresponding LED (D111-2 to D111-13) is lit to indicate the output power of Model TA-F60.

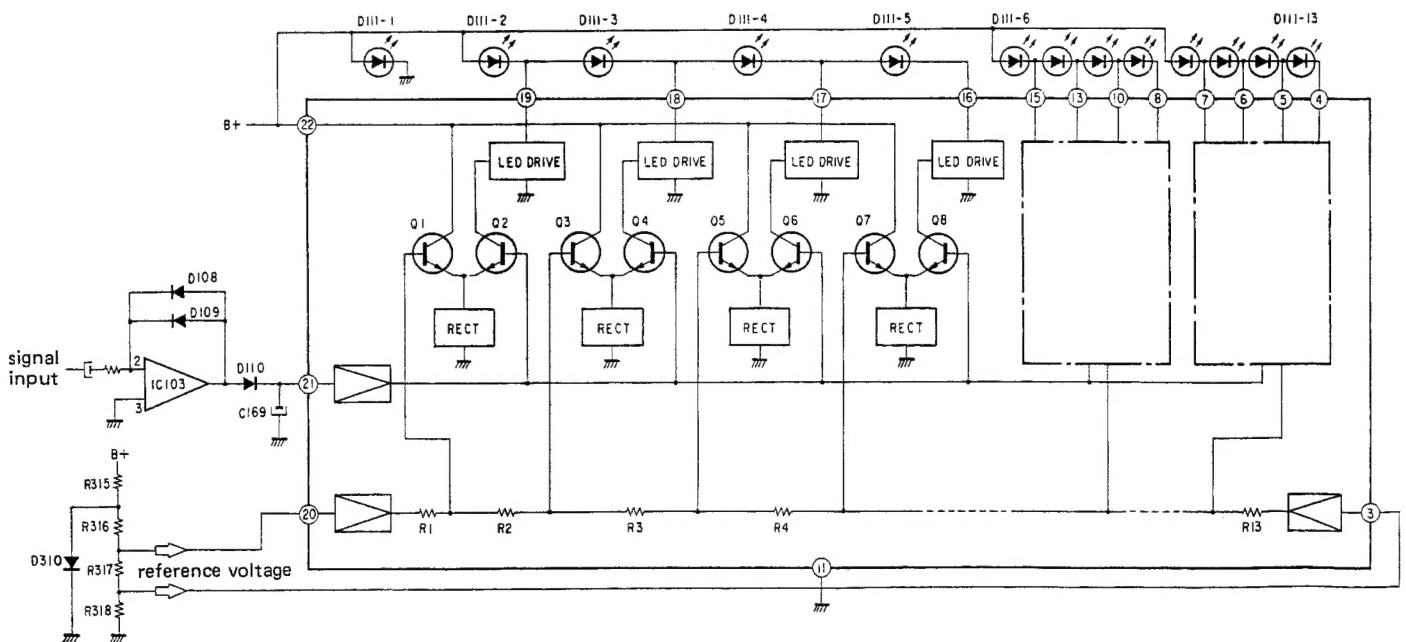
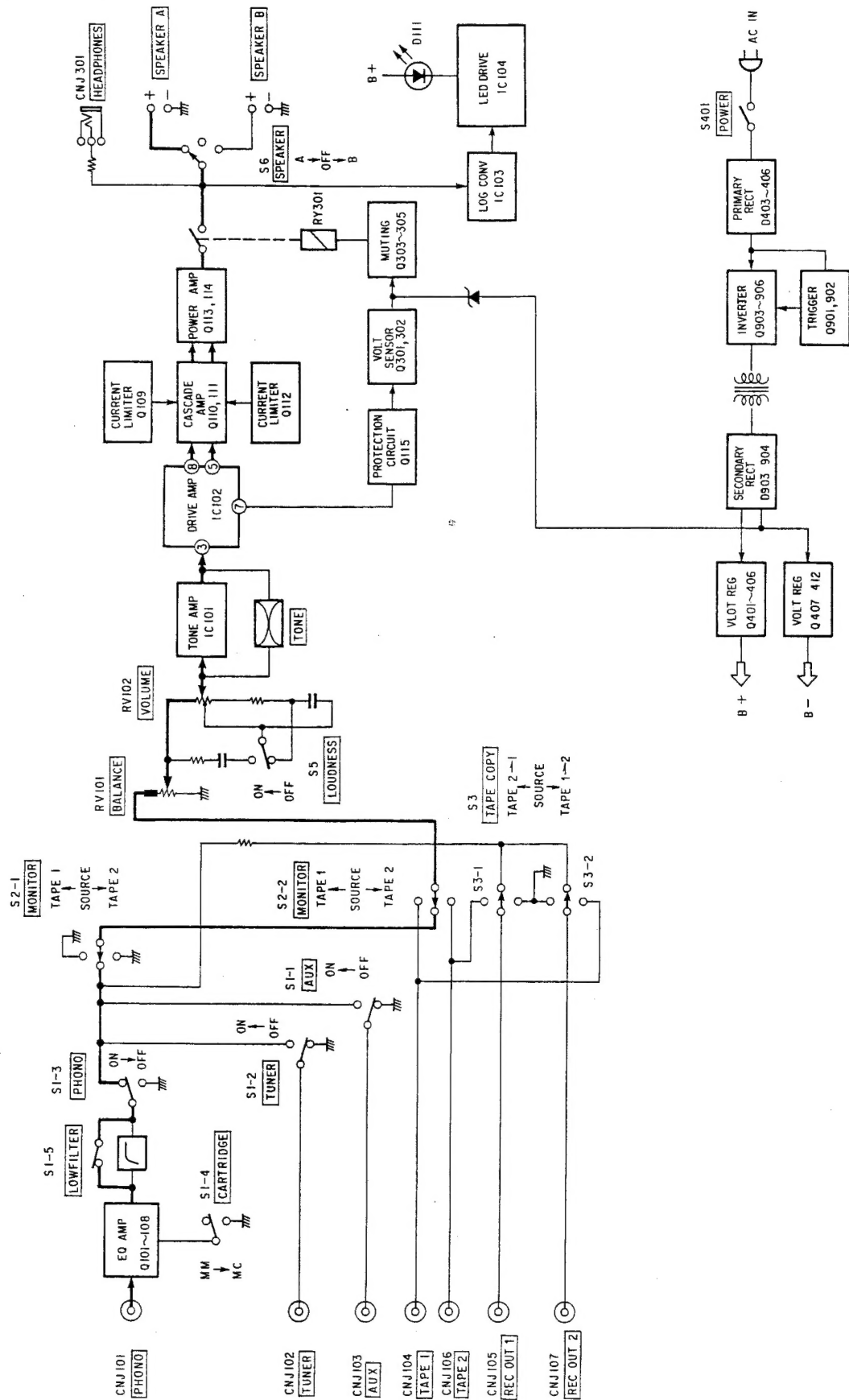


Fig. 2

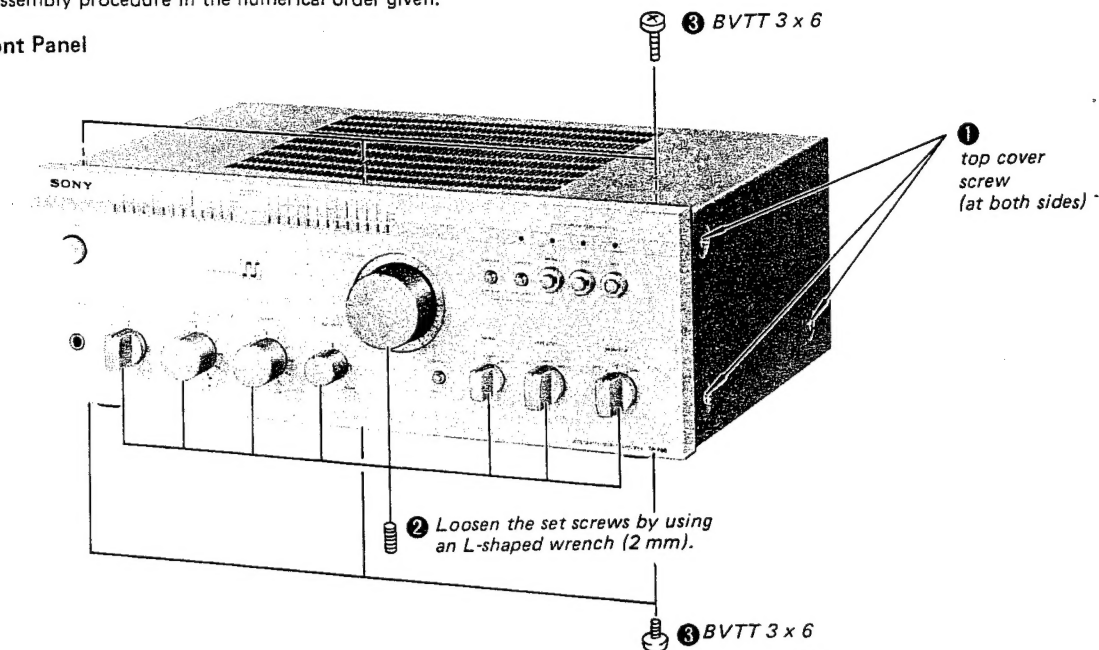
1-3. BLOCK DIAGRAM



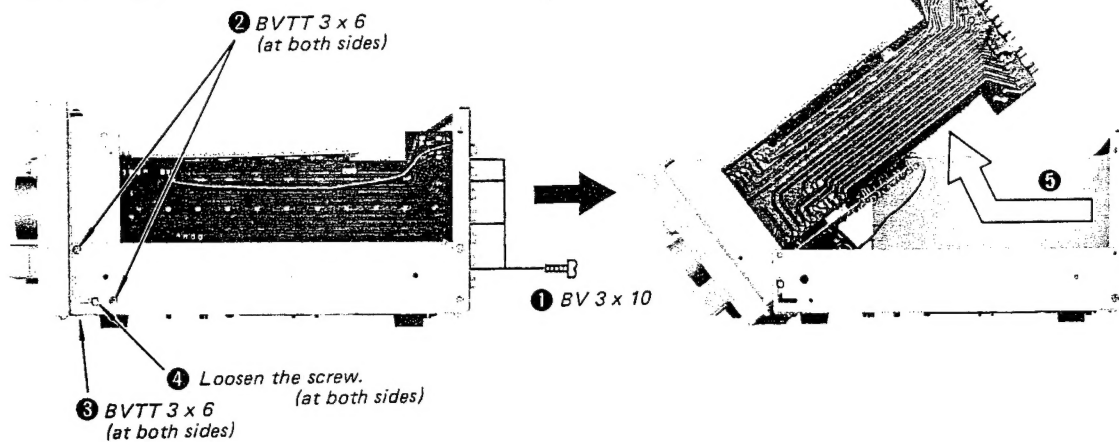
SECTION 2 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

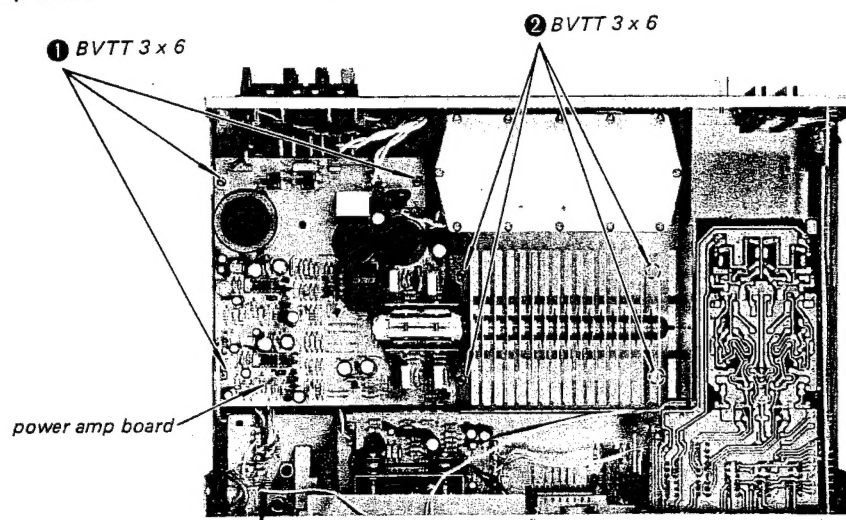
Top Cover and Front Panel



Circuit Board Check



Power Amp Board



SECTION 3 ADJUSTMENTS

Note:

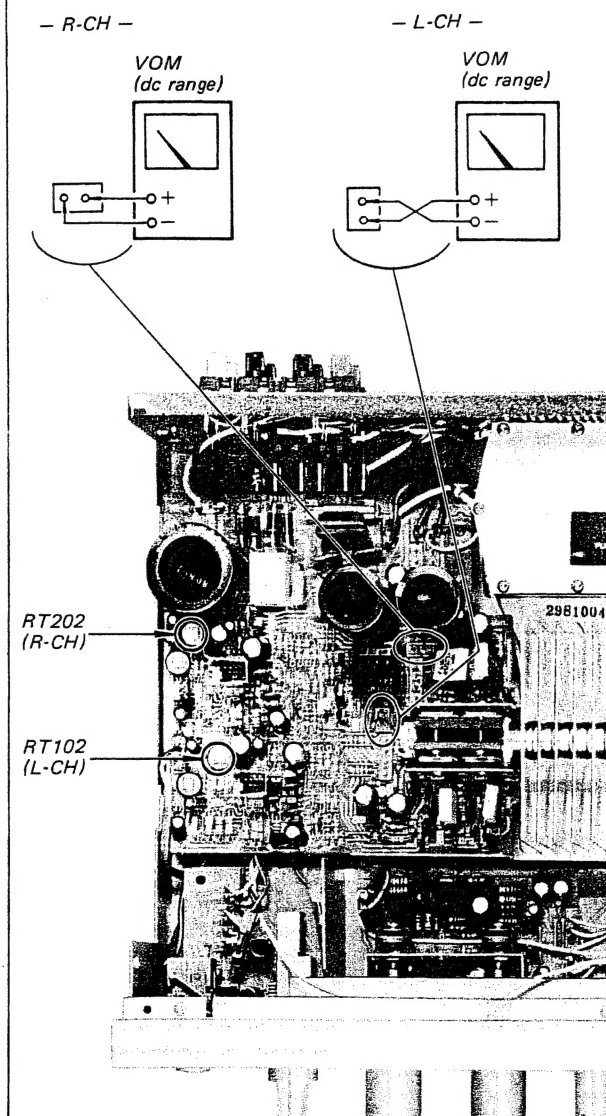
1. DC BIAS and DC BALANCE adjustments should be made several minutes later after the POWER switch is turned on (POWER ON.).
2. Make DC BIAS adjustment first.
3. Repeat DC BIAS and DC BALANCE adjustments two or three times.
4. After replacing the power transistors, DC BIAS and DC BALANCE adjustments should be made.

DC Bias Adjustment

Procedure:

Adjust RT102 (L-CH) and RT202 (R-CH) for 22 mV readings with no signal input.

Adjustment Location:

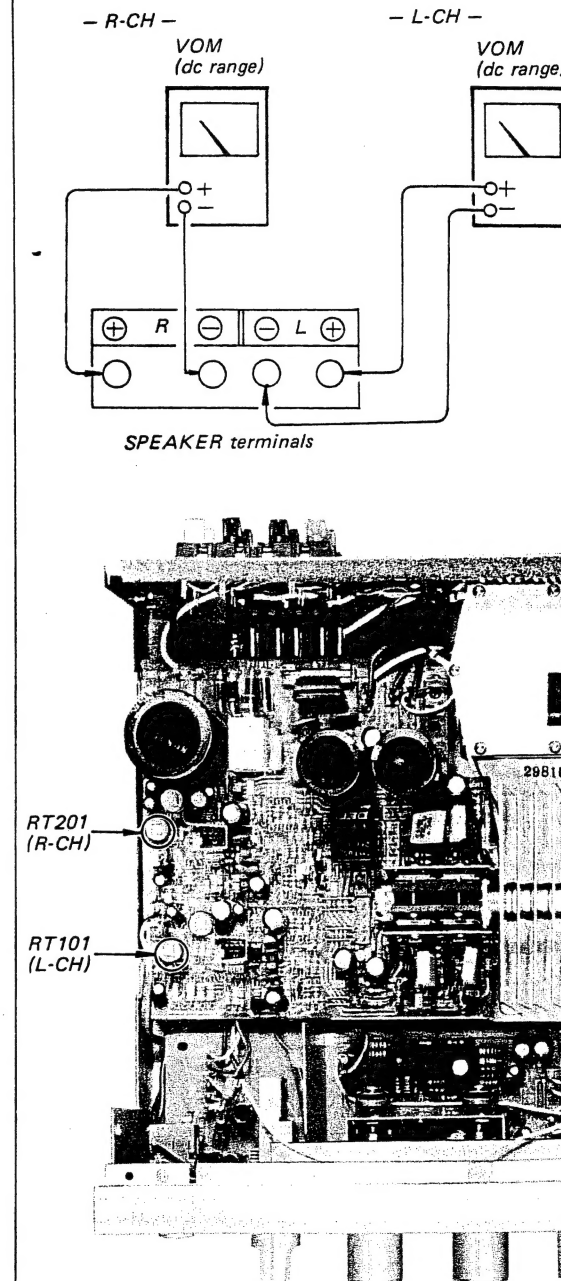


DC Balance Adjustment

Procedure:

Adjust RT101 (L-CH) and RT201 (R-CH) for 0 V readings with no signal input.

Adjustment Location:

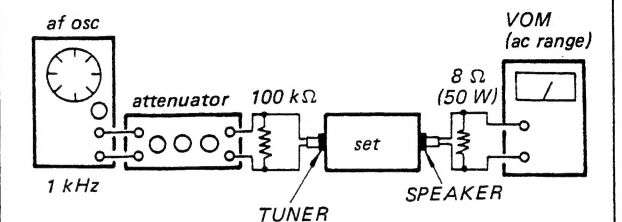


Meter Level Adjustment

Setting:

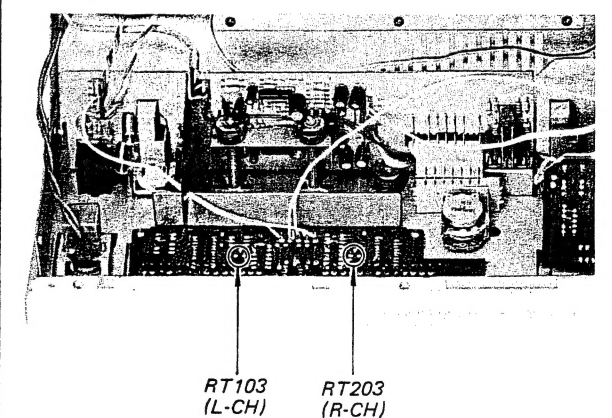
FUNCTION switch: TUNER

Procedure:



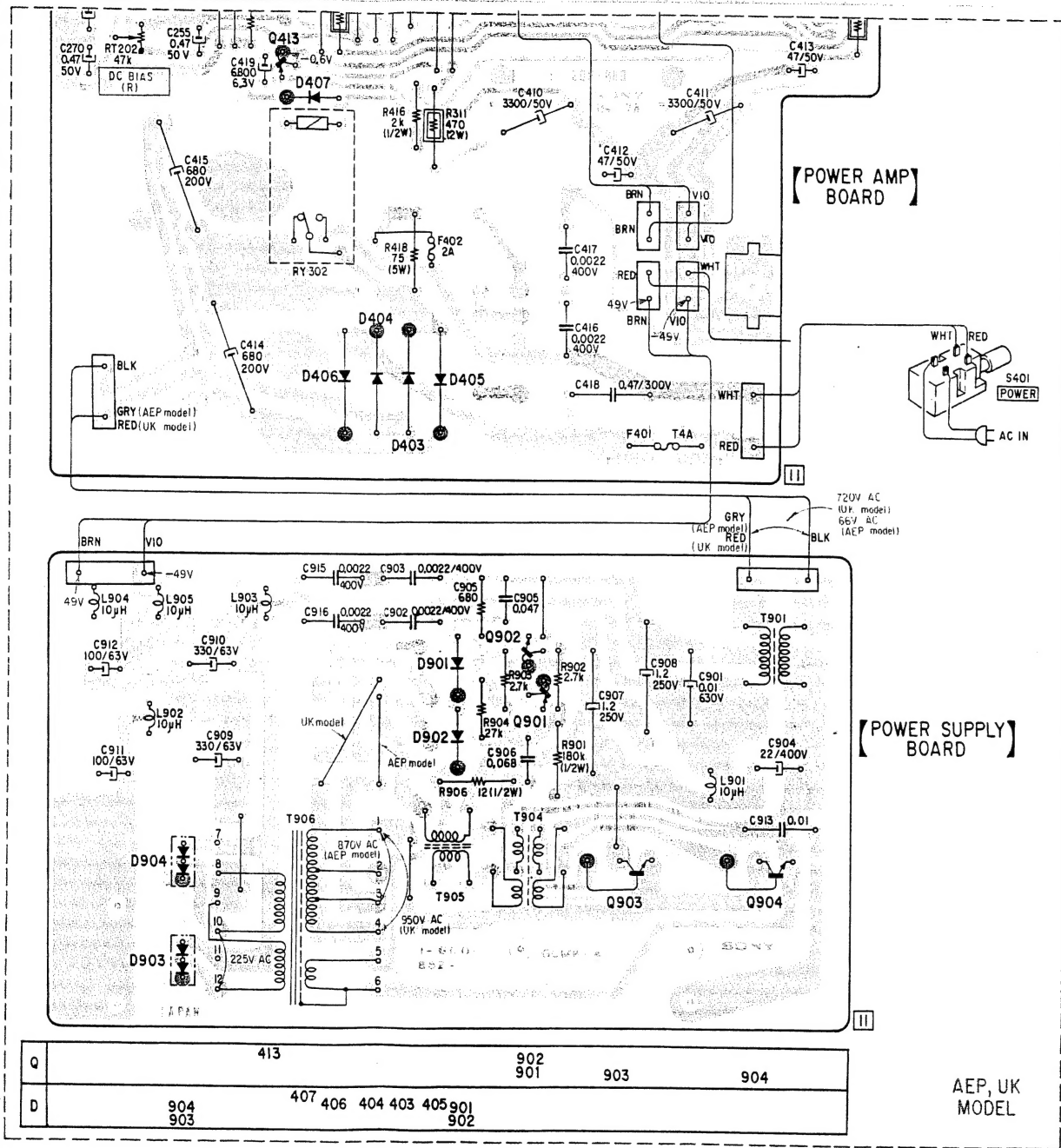
1. Turn the VOLUME control fully clockwise.
2. Adjust the attenuator so that the VOM reads 8 W (8 V).
3. Adjust RT103 (L-CH) and RT203 (R-CH) so that the 10 W indicator (3rd LED from right) begins to turn on.
4. Confirmation:
 - 30 W indicator turns on when the VOM indicates 30 W (15.5 V).
 - 0.01 W indicator turns on when the VOM indicates 0.01 W (0.283 V).

Adjustment Location:



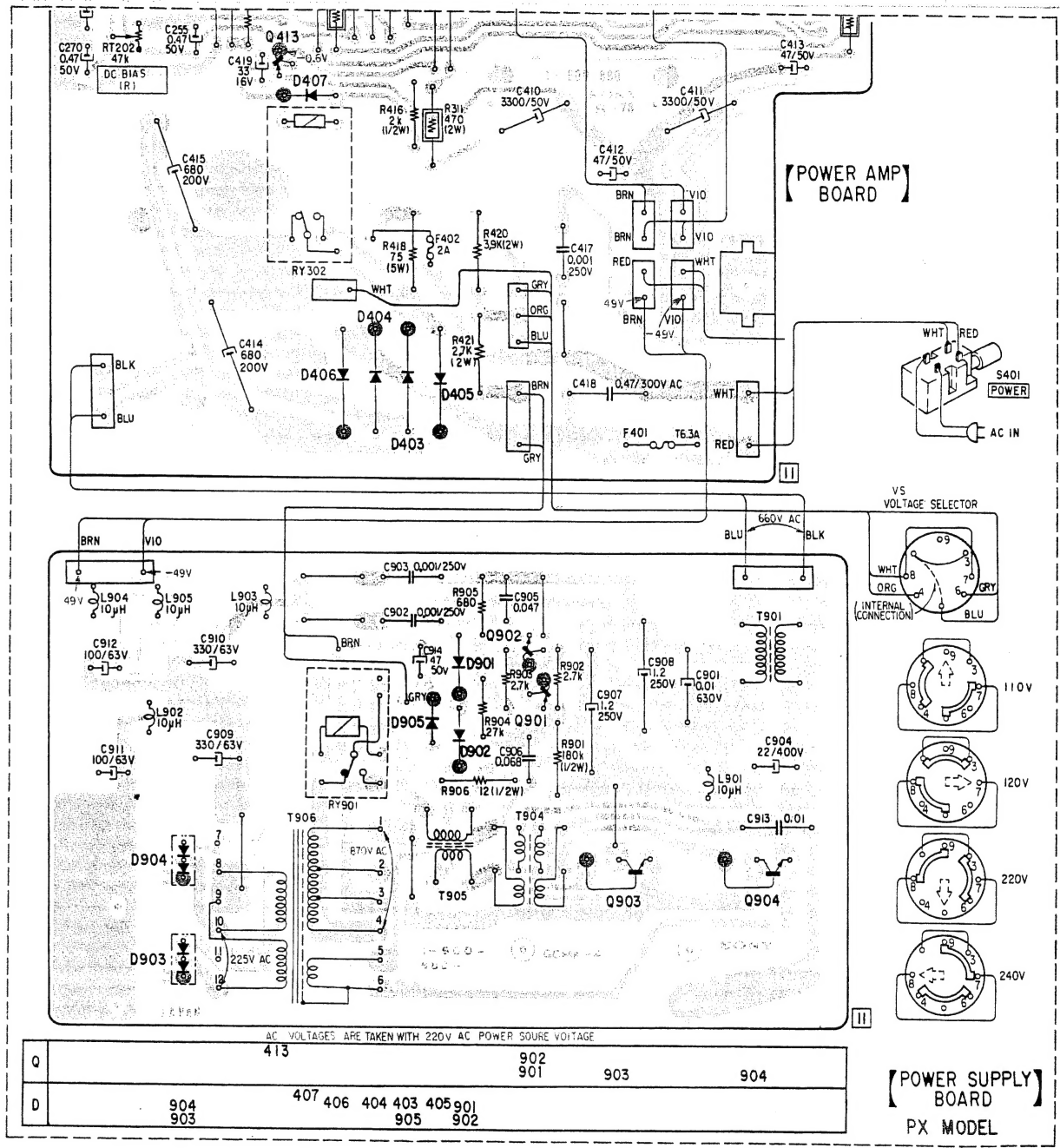
SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM — Power Amp Board and Power Supply Board —
— Conductor Side —
(AEP, UK model)



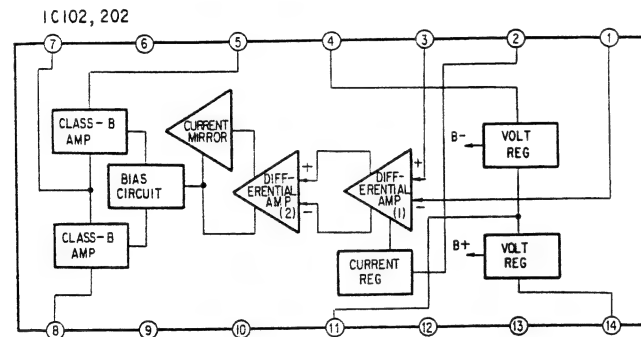
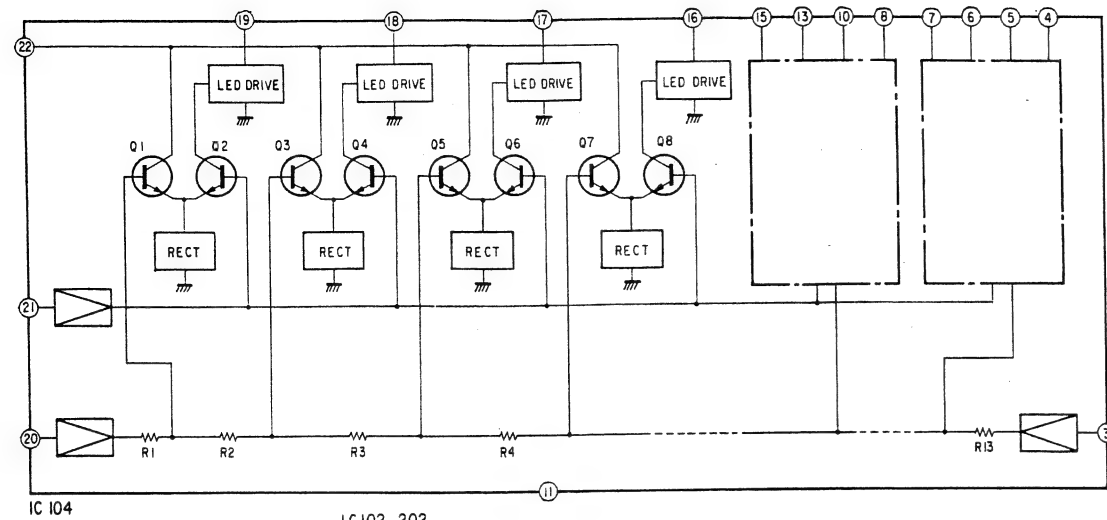
Note:
• : B+ pattern
• : B- pattern

4-2. MOUNTING DIAGRAM — Power Amp Board and Power Supply Board —
— Conductor Side —
(PX model)

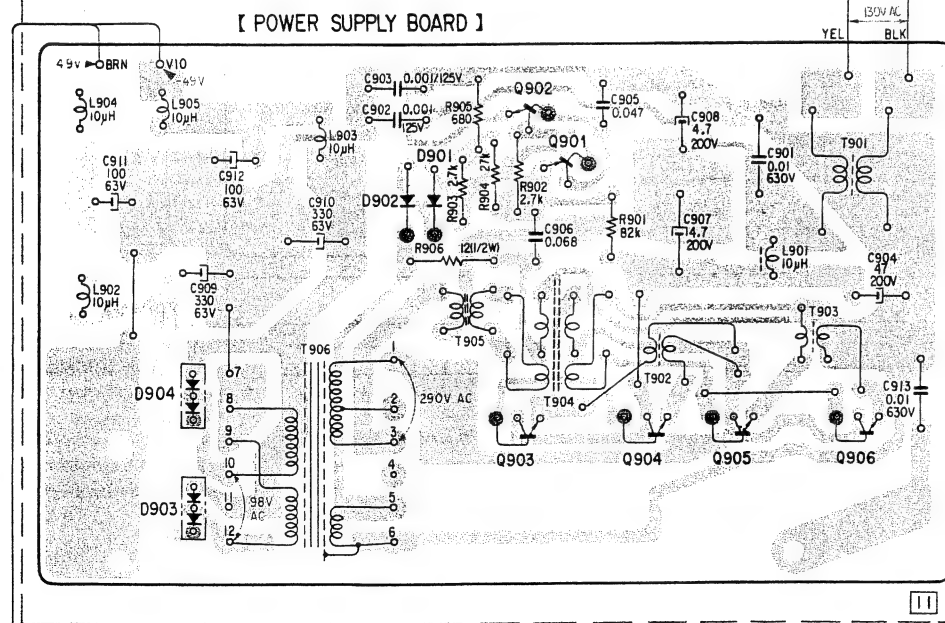
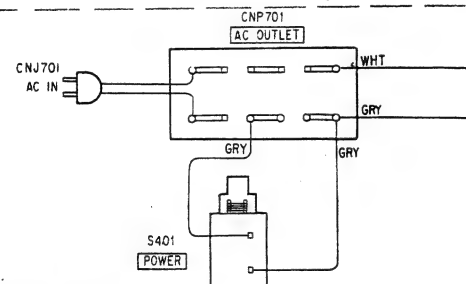


Note:
• : B+ pattern
• : B- pattern

— Conductor Side —

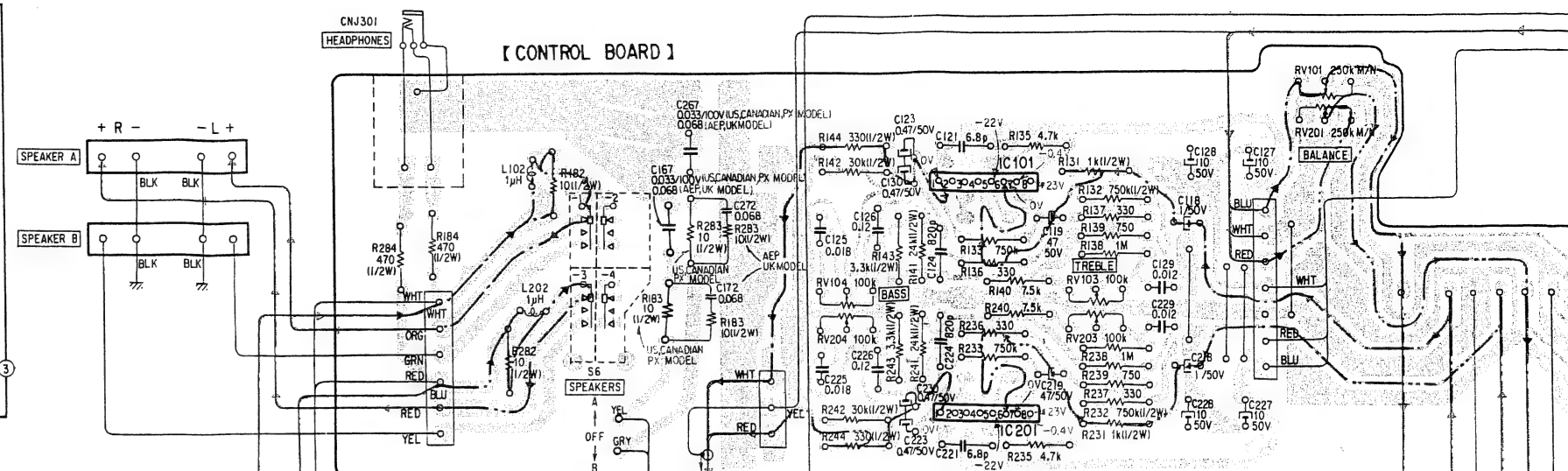
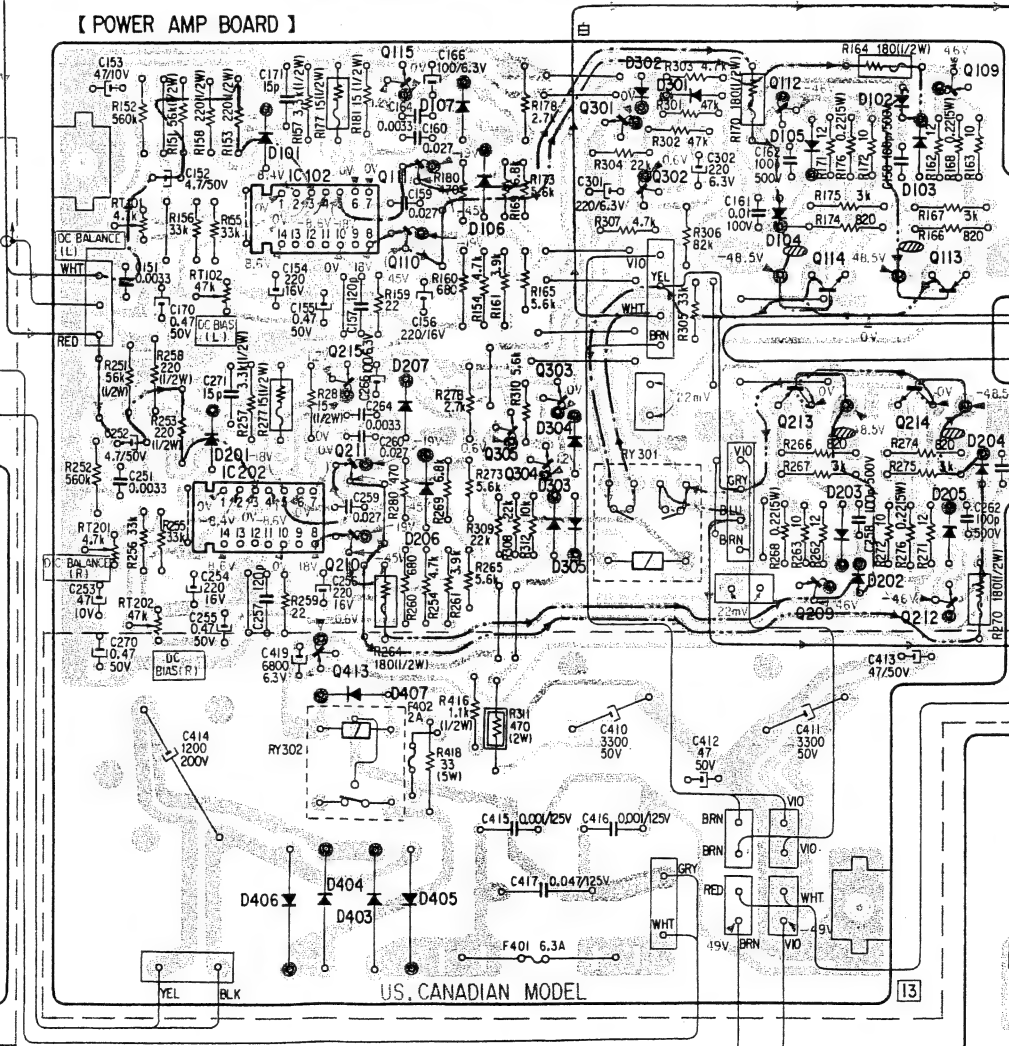


AEP, UK MODEL (See page 11)
PX MODEL (See page 12)

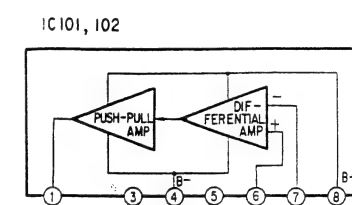


| | | | | | |
|---|------------|---------|-----|-----|-----|
| Q | | 902 901 | | | |
| | | 903 | 904 | 905 | 906 |
| D | 904 903 | 902,901 | | | |

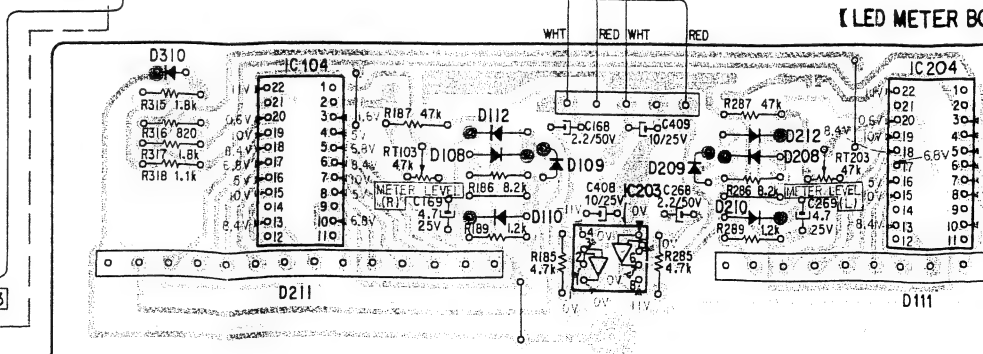
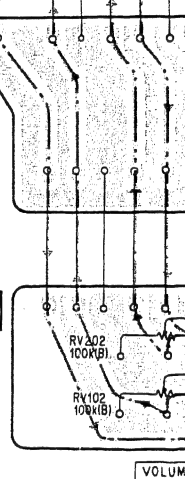
TA-F60 TA-F60

[illegible]

AEP, UK MODEL (See page 11)
PX MODEL (See page 12)

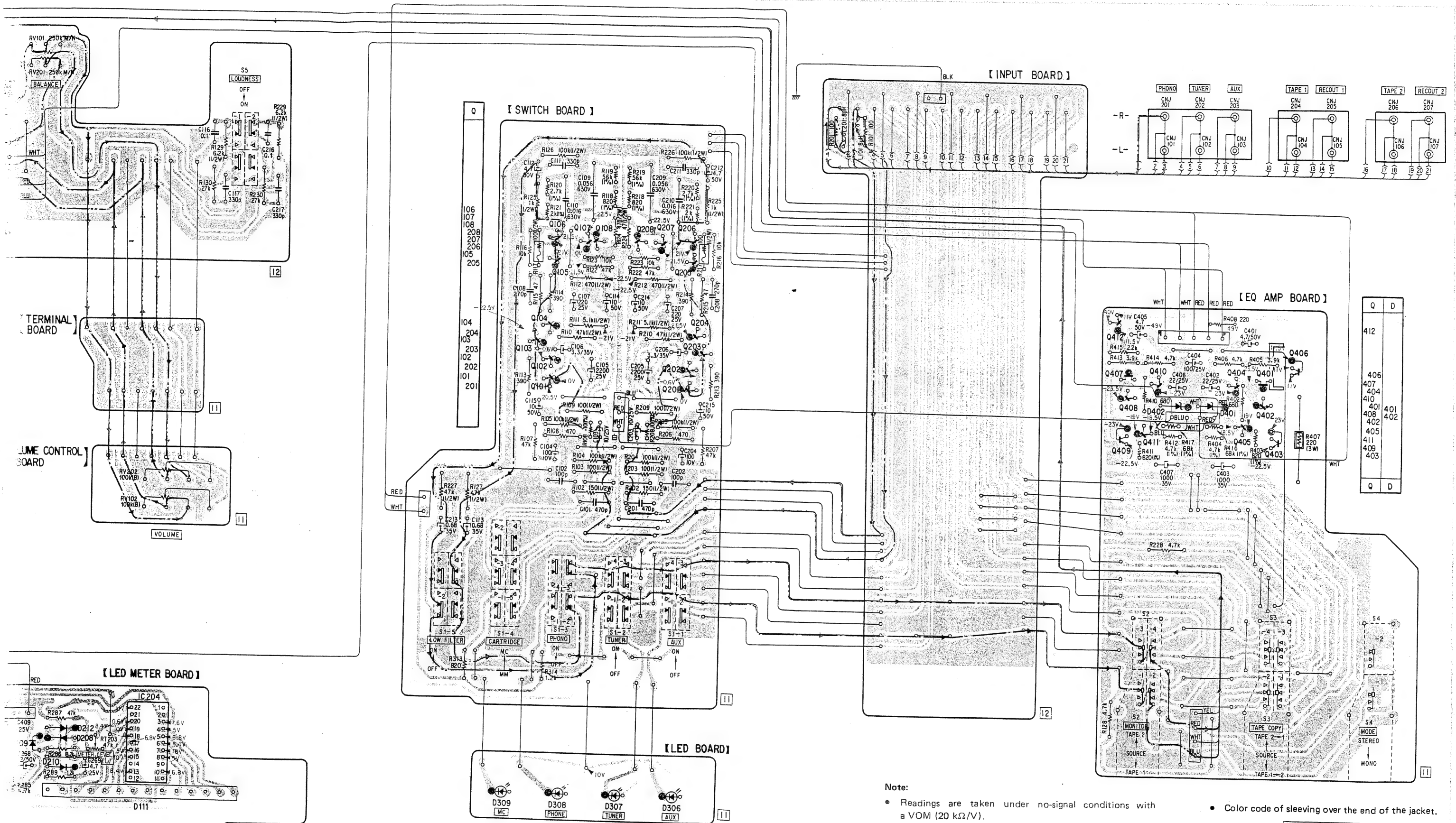


【 TERMINAL BOARD】

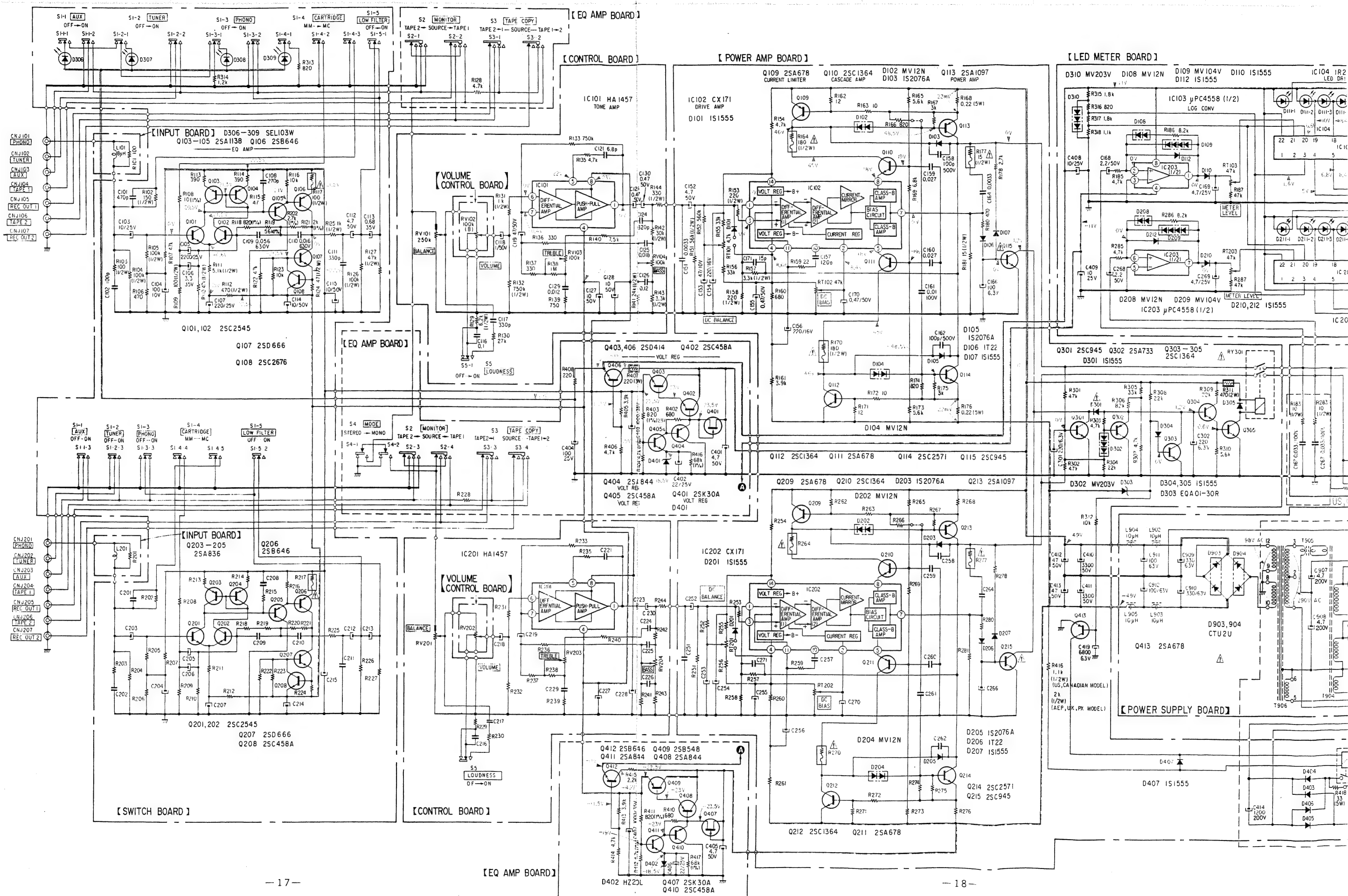


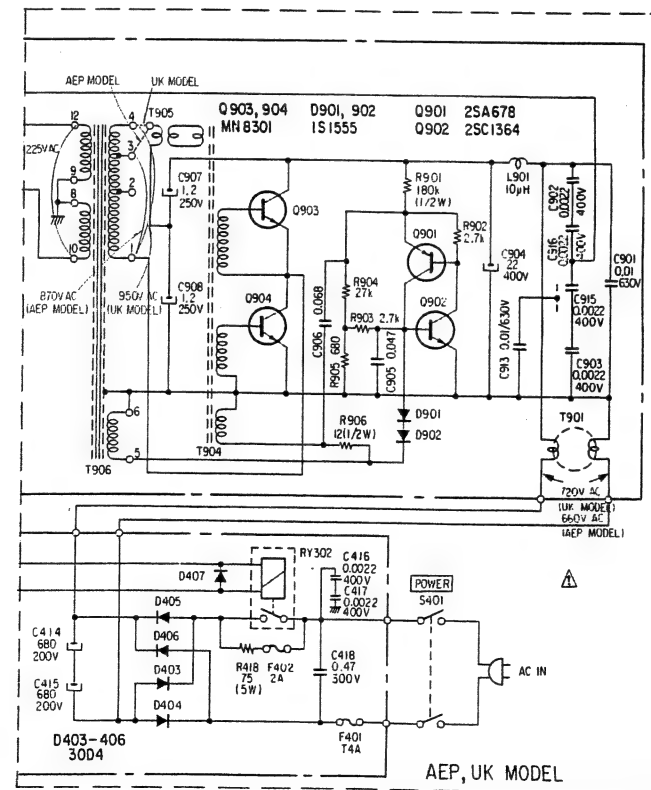
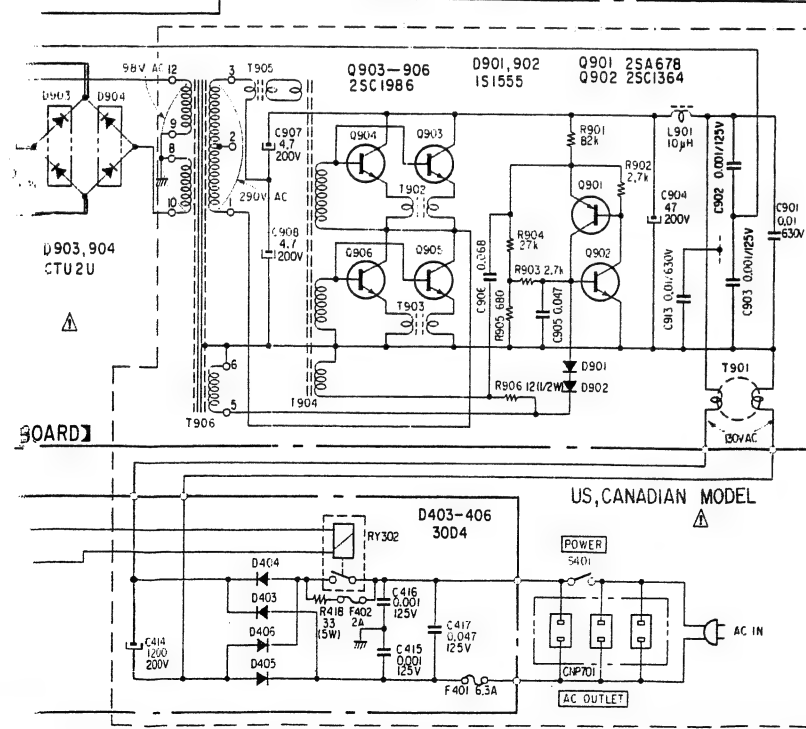
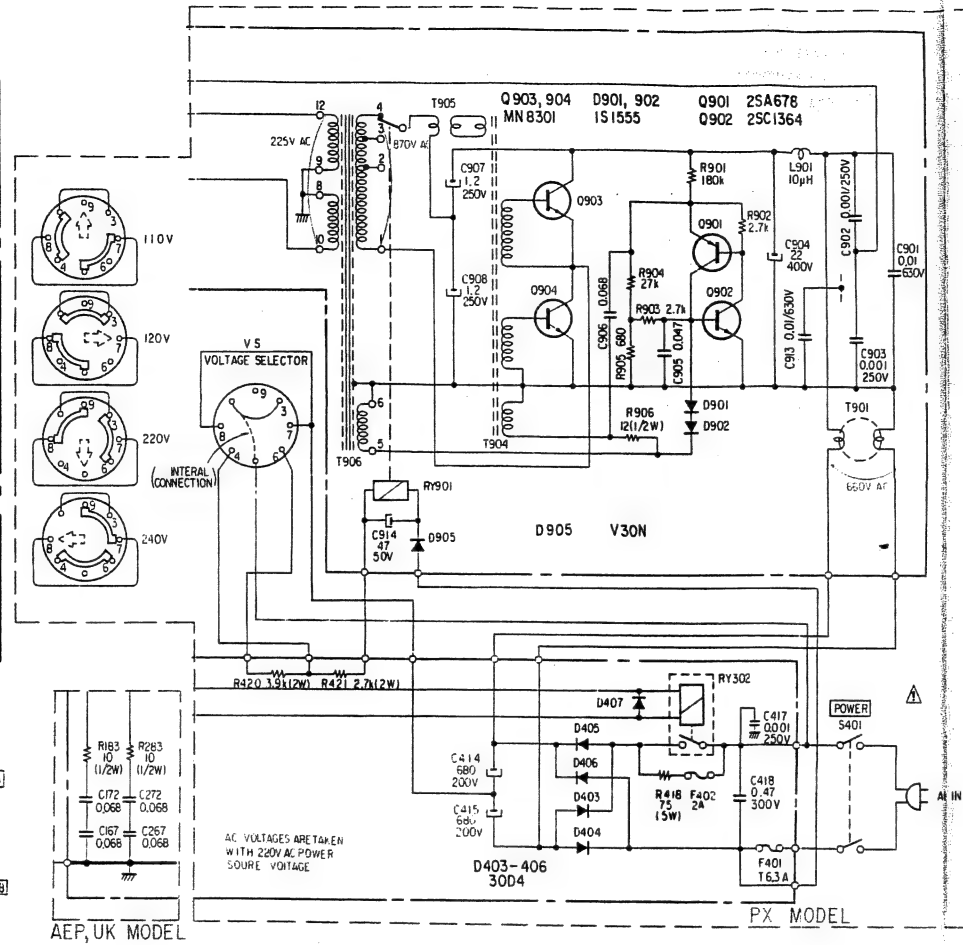
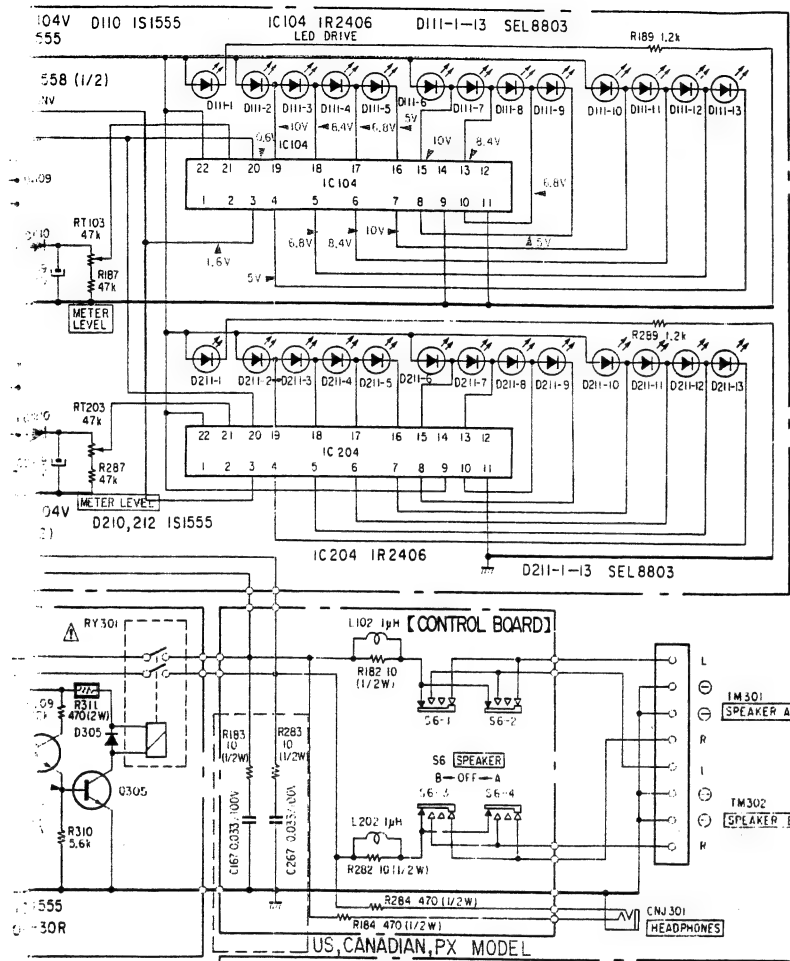
LED METER BO

| | | | | | | |
|----|-----|-----|----------------|-----|-----|----------------|
| IC | 104 | | 203 | | 204 | |
| D | 310 | 211 | 112 109 110 | 109 | 209 | 212 208 210 |









TA-F60 TA-F60







Note:

- All capacitors are in μF unless otherwise noted. $\text{pF} : \mu\text{F}$ 50WV or less are not indicated except for electrolytics and tantalum.
- All resistors are in ohms, $\frac{1}{4}\text{W}$ unless otherwise noted.
 $\text{k}\Omega : 1000 \Omega$, $\text{M}\Omega : 1000 \text{k}\Omega$
-  : nonflammable resistor.
-  : fusible resistor.
-  : panel designation.
-  : adjustment for repair.
- Readings are taken under no-signal conditions with a VOM (20 $\text{k}\Omega/\text{V}$).
-  : B+ bus.
-  : B- bus.

| Ref. No. | Switch | Position |
|----------|------------|----------|
| S1-1 | AUX | OFF |
| S1-2 | TUNER | OFF |
| S1-3 | PHONO | ON |
| S1-4 | CARTRIDGE | MM |
| S1-5 | LOW FILTER | OFF |
| S2 | MONITOR | SOURCE |
| S3 | TAPE COPY | SOURCE |
| S4 | MODE | STEREO |
| S5 | LOUDNESS | OFF |
| S6 | SPEAKERS | A |

Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

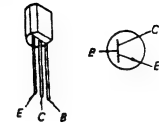
Replacement Semiconductors

For replacement, use semiconductors except in ().

Q101, 102, 201, 202: 2SC2545

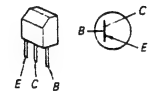
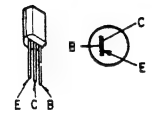
Q110, 210
Q112, 212
Q303-305, 902 } : 2SC1364

Q115, 215: 2SC1364 (2SC945)
Q301



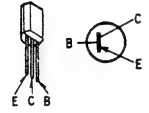
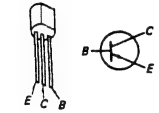
Q103-105, 203-205: 2SA872

(2SA1138)



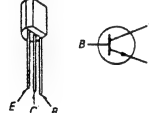
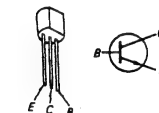
Q106, 206, 412: 2SA896

(2SB646)

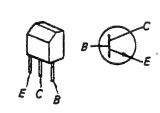
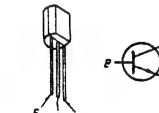


Q107, 207: 2SC1811

(2SD666)

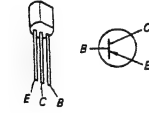
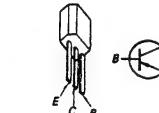


Q108, 208: 2SC1364 (2SC2676)
Q402, 405, 410: 2SC1364 (2SC458A)

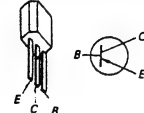


Q302: 2SA1027R

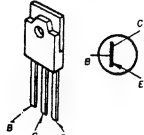
(2SA733)



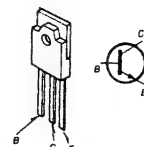
Q109, 209
Q111, 211
Q413, 901
Q404, 408, 411: 2SA1027R (2SA844)



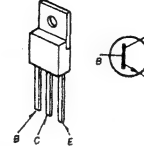
Q113, 213: 2SA1097



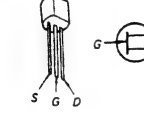
Q114, 214: 2SC2571
Q903, 904: MN8301C (AEP, UK, PX model)



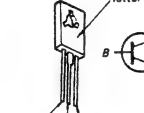
Q903-906: 2SC1986D (2SC1986) (US, Canadian model)



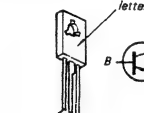
Q401, 407: 2SK30A



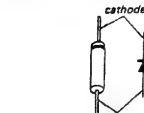
Q403, 406: 2SD414



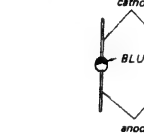
Q409: 2SB548



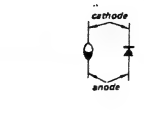
D101, 107, 110, 112
D201, 207, 210, 212
D301, 304, 305
D407, 901, 902
D103, 203 } : 1S1555
D105, 205: 1S2076A
D106, 206: 1T22AM (1T22)



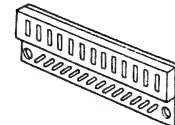
D102, 202
D104, 204
D108, 208 } : MV12N



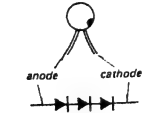
D109, 209: MV104V



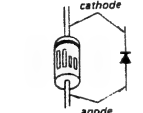
D111, 211: SEL8803



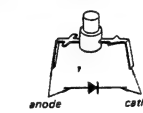
D302, 310: MV203V



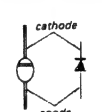
D303: EQB01-30 (EQA01-30R)
D401, 402: EQB01-20 (HZ20L)



D306-309: SEL103W



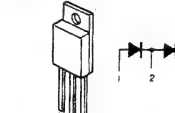
D403-406: U05G



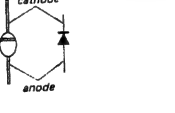
(30D4)



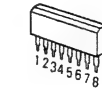
D903, 904: CTU22U (CTU2U)



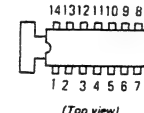
D905: V30N (PX model)



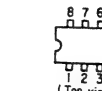
IC101, 201: HA1457



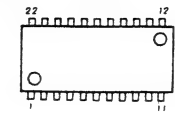
IC102, 202: CX171



IC103, 203: μ PC4558C (μ PC4558)



IC104, 204: 1R2406

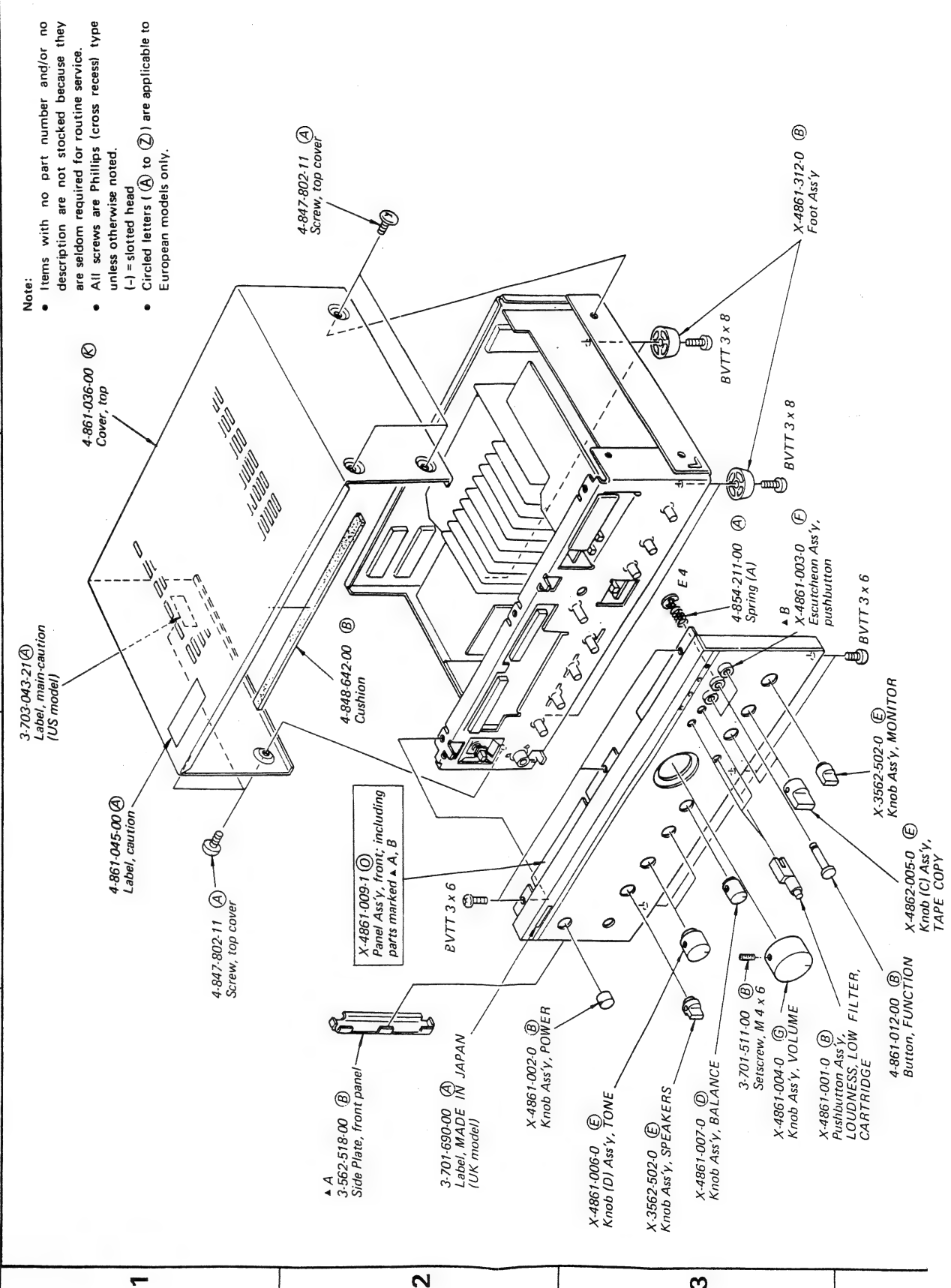


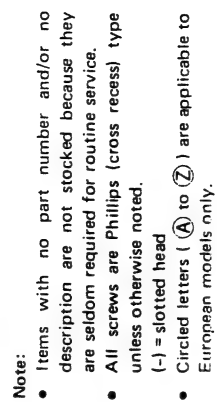
TA-F60 TA-F60

SECTION 5 EXPLODED VIEWS

5-1.

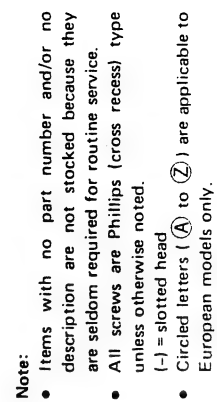
- Note:
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
 - All screws are Phillips (cross recess) type unless otherwise noted.
 - (-) = slotted head
 - Circled letters (A to Z) are applicable to European models only.






Note: Les composants identifiés par un trame et une marque **A** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.



Note: Les composants identifiés par un tramé et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.


SECTION 6

ELECTRICAL PARTS LIST

Note: Circled letters (A) to (Z) are applicable to European models only.

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|---|--|---|
| SEMICONDUCTORS | | |
| Transistors | | |
| Q101, 201 Q102, 202 ⇒ Q103-105 ⇒ Q203-205 ⇒ Q106, 206 ⇒ Q107, 207 ⇒ Q108, 208 | 8-729-354-52 8-729-387-28 8-765-082-20 8-765-012-20 8-729-663-47 | (E) 2SC2545 (B) 2SA872 (C) 2SA896 (C) 2SC1811 (C) 2SC1364 |
| ⇒ Q109, 209 Q110, 210 ⇒ Q111, 211 Q112, 212 Q113, 213 | 8-729-612-77 8-729-663-47 8-729-612-77 8-729-663-47 8-729-397-22 | (B) 2SA1027R (C) 2SC1364 (B) 2SA1027R (C) 2SC1364 (I) 2SA1097 |
| Q114, 214 ⇒ Q115, 215 | 8-729-371-22 8-729-663-47 | (G) 2SC2571 (C) 2SC1364 |
| ⇒ Q301 ⇒ Q302 Q303-305 | 8-729-663-47 8-729-612-77 8-729-663-47 | (C) 2SC1364 (B) 2SA1027R (C) 2SC1364 |
| Q401 ⇒ Q402 Q403 ⇒ Q404 ⇒ Q405 | 8-729-203-04 8-729-663-47 8-729-141-43 8-729-612-77 8-729-663-47 | (B) 2SK30A (C) 2SC1364 (B) 2SD414 (B) 2SA1027R (C) 2SC1364 |
| Q406 Q407 ⇒ Q408 Q409 ⇒ Q410 | 8-729-141-43 8-729-203-04 8-729-612-77 8-729-154-83 8-729-663-47 | (B) 2SD414 (B) 2SK30A (B) 2SA1027R (B) 2SB548 (C) 2SC1364 |
| ⇒ Q411 ⇒ Q412 ⇒ Q413 | 8-729-612-77 8-765-082-20 8-729-612-77 | (B) 2SA1027R (C) 2SA896 (B) 2SA1027R |
| ⇒ Q901 Q902 ⇒ Q903-906 | 8-729-612-77 8-729-663-47 8-729-308-41 | (B) 2SA1027R (C) 2SC1364 2SC1986D |
| (US, Canadian model) | | |
| Q903, 904 | 8-729-384-31 | (F) MN8301C (AEP, UK, PX model) |


⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> |
|---|--|---|
| ICs | | |
| IC101, 201 IC102, 202 ⇒ IC103, 203 IC104, 204 | 8-759-314-57 8-751-710-00 8-759-145-58 8-759-924-06 | (C) HA1457 (H) CX171 (D) μ PC4558C (G) 1R2406 |
| Diodes | | |
| D101, 201 D102, 202 D103, 203 D104, 204 D105, 205 | 8-719-815-55 8-719-912-00 8-719-923-76 8-719-912-00 8-719-923-76 | (B) 1S1555 (B) MV12N (B) 1S2076A (B) MV12N (B) 1S2076A |
| ⇒ D106, 206 D107, 207 D108, 208 D109, 209 ⇒ D110, 210 | 8-719-422-21 8-719-815-55 8-719-912-00 8-719-910-40 8-719-815-55 | (B) 1T22AM (B) 1S1555 (B) MV12N (B) MV104V (B) 1S1555 |
| D111, 211 D112, 212 | 8-719-388-03 8-719-815-55 | (H) SEL8803 (B) 1S1555 |
| D301 D302 ⇒ D303 D304, 305 D306-309 D310 | 8-719-815-55 8-719-920-30 8-719-931-30 8-719-815-55 8-719-310-30 8-719-920-30 | (B) 1S1555 (B) MV203V (B) EQB01-30 (B) 1S1555 (C) SEL103W (B) MV203V |
| ⇒ D401, 402 ⇒ D403-406 D407 | 8-719-931-20 8-719-911-55 8-719-815-55 | (B) EQB01-20 (B) U05G (B) 1S1555 |
| D901, 902 ⇒ D903, 904 D905 | 8-719-815-55 8-719-300-22 8-719-903-09 | (B) 1S1555 (D) CTU22U V30N(PX model) |

COILS AND TRANSFORMERS

| | | |
|-----------------------|------------------------------|--------------------------------------|
| L101, 201 L901-905 | 1-407-519-00 1-421-329-00 | (B) Microinductor (B) Coil, choke |
| T901 | 1-421-328-00 | Line Filter (US, Canadian model) |

Note: Les composants identifiés par un tramé et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: Circled letters (A) to (Z) are applicable to European models only.

| Ref. No. | Part No. | Description |
|-----------|-------------------|--|
| T901 | △1-421-340-00 (E) | Line Filter (AEP, UK, PX model) |
| T902-905 | △1-543-100-00 (B) | Core (US, Canadian model) |
| T904, 905 | △1-543-100-00 (B) | Core (AEP, UK, PX model) |
| T906 | △1-446-333-00 | Transformer, converter (US, Canadian model) |
| T906 | △1-446-390-00 (L) | Transformer, converter (AEP, UK, PX model) |

CAPACITORS

All capacitors are in μF and ceramic unless otherwise noted.
50 WV or less are not indicated except for electrolytics.
pF : μF , elect : electrolytic

| | | | | |
|------------|------------------|-------|-------|-------------------------|
| C101 | 1-161-319-00 (A) | 470 p | | |
| C102, 202 | 1-102-973-00 (A) | 100 p | | |
| C103, 203 | 1-131-238-00 (B) | 10 | 25 V | tantalum |
| C104, 204 | 1-121-414-00 (B) | 100 | 10 V | elect |
| C105, 205 | 1-123-067-00 (C) | 2200 | 25 V | elect |
| C106, 206 | 1-131-218-00 (B) | 3.3 | 35 V | tantalum |
| C107, 207 | 1-121-422-00 (B) | 220 | 25 V | elect |
| C108, 208 | 1-161-316-00 (A) | 270 p | | |
| C109, 209 | 1-130-205-00 (C) | 0.056 | 630 V | film |
| C110, 210 | 1-130-206-00 (B) | 0.016 | 630 V | film |
| C111, 211 | 1-161-317-00 (A) | 330 p | | |
| C112, 212 | 1-123-232-00 (B) | 4.7 | 50 V | elect (nonpolarized) |
| C113, 213 | 1-131-214-00 (B) | 0.68 | 35 V | tantalum |
| C114, 214, | 1-121-738-00 (B) | 10 | 50 V | elect |
| C115, 215 | | | | |
| C116, 216 | 1-108-251-00 (B) | 0.1 | | mylar |
| C117, 217 | 1-161-317-00 (A) | 330 p | | |
| C118, 218 | 1-123-228-00 (B) | 1 | 50 V | elect (nonpolarized) |
| C119, 219 | 1-121-411-00 (B) | 47 | 50 V | elect |
| C121, 221 | 1-161-257-00 (A) | 6.8 p | | |
| C123, 223 | 1-121-726-00 (B) | 0.47 | 50 V | elect |
| C124, 224 | 1-102-117-00 (A) | 820 p | | |
| C125, 225 | 1-108-358-00 (B) | 0.018 | | mylar |
| C126, 226 | 1-108-605-00 (B) | 0.12 | | mylar |
| C127, 227, | 1-121-738-00 (B) | 10 | 50 V | elect |
| C128, 228 | | | | |
| C129, 229 | 1-108-581-00 (B) | 0.012 | | mylar |

| Ref. No. | Part No. | Description |
|------------|------------------|--|
| C130, 230 | 1-121-726-00 (B) | 0.47 50 V elect |
| C151, 251 | 1-102-123-00 (A) | 0.003 |
| C152, 252 | 1-123-232-00 (B) | 4.7 50 V elect (nonpolarized) |
| C153, 253 | 1-121-352-00 (B) | 47 10 V elect |
| C154, 254 | 1-121-421-00 (B) | 220 16 V elect |
| C155, 255 | 1-121-726-00 (B) | 0.47 50 V elect |
| C156, 256 | 1-121-421-00 (B) | 220 16 V elect |
| C157, 257 | 1-102-816-00 (A) | 120 p |
| C158, 258 | 1-107-169-00 (B) | 100 p 500 V silvered mica |
| C159, 259, | 1-161-056-00 (A) | 0.027 50 V (semiconductor) |
| C160, 260 | | |
| C161, 261 | 1-129-701-00 (B) | 0.01 100 V film |
| C162, 262 | 1-107-169-00 (B) | 100 p 500 V silvered mica |
| C164, 264 | 1-102-123-00 (A) | 0.003 |
| C166, 266 | 1-121-414-00 (B) | 100 6.3 V elect |
| C167, 267 | 1-108-599-00 (B) | 0.068 mylar (AEP, UK, model) |
| C167, 267 | 1-130-117-00 | 0.033 100 V film (US, Canadian, PX model) |
| C168, 268 | 1-121-450-00 (B) | 2.2 50 V elect |
| C169, 269 | 1-121-395-00 (B) | 4.7 25 V elect |
| C170, 270 | 1-121-726-00 (B) | 0.47 50 V elect |
| C171, 271 | 1-161-261-00 (A) | 15 p |
| C172, 272 | 1-108-599-00 (B) | 0.068 mylar (AEP, UK model) |
| C301, 302 | 1-121-419-00 (B) | 200 6.3 V elect |
| C401 | 1-121-396-00 (B) | 4.7 50 V elect |
| C402 | 1-121-480-00 (B) | 22 25 V elect |
| C403 | 1-121-388-00 (C) | 1000 35 V elect |
| C404 | 1-121-416-00 (B) | 100 25 V elect |
| C405 | 1-121-396-00 (B) | 4.7 50 V elect |
| C406 | 1-121-480-00 (B) | 22 25V elect |
| C407 | 1-121-388-00 (C) | 1000 35 V elect |
| C408, 409 | 1-121-398-00 (B) | 10 25 V elect |
| C410, 411 | 1-123-450-00 (G) | 3300 50 V elect |
| C412, 413 | 1-121-411-00 (A) | 47 50 V elect |
| C414 | △1-125-180-00 | 1200 200 V elect (US, Canadian model) |

Note: The components identified by shading and mark △ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: Circled letters (A to Z) are applicable to European models only.

| Ref. No. | Part No. | Description |
|-----------|---------------------------|--|
| C414, 415 | Δ 1-123-291-00 (H) | 680 200 V elect (AEP, UK, PX model) |
| C415, 416 | Δ 1-161-516-00 | 0.001 125 V (US, Canadian model) |
| C416, 417 | Δ 1-161-734-00 (B) | 0.0022 400 V (AEP, UK model) |
| C417 | Δ 1-102-222-000 | 0.001 250 V (PX model) |
| C417 | Δ 1-130-197-00 | 0.047 125 V film (US, Canadian model) |
| C418 | Δ 1-130-342-00 (C) | 0.47 300 V film (AEP, UK, PX model) |
| C419 | Δ 1-123-303-00 | 6800 6.3 V elect |
| C901 | Δ 1-130-141-00 (B) | 0.01 630 V film |
| C902, 903 | Δ 1-161-516-00 | 0.001 125 V (US, Canadian model) |
| C902, 903 | Δ 1-161-734-00 (B) | 0.0022 400 V (AEP, UK model) |
| C902, 903 | Δ 1-102-222-00 | 0.001 250 V (PX model) |
| C904 | Δ 1-123-401-00 | 47 200 V elect (US, Canadian model) |
| C904 | Δ 1-123-402-00 (C) | 22 400 V elect (AEP, UK, PX model) |
| C905 | Δ 1-108-595-00 (B) | 0.047 mylar |
| C906 | Δ 1-108-599-00 (B) | 0.068 mylar |
| C907, 908 | Δ 1-123-539-00 | 4.7 200 V elect (US, Canadian model) |
| C907, 908 | Δ 1-130-358-00 | 1.2 250 V (AEP, UK, PX model) |
| C909, 910 | Δ 1-123-376-00 (C) | 330 63 V elect |
| C911, 912 | Δ 1-123-374-00 (B) | 100 63 V elect |
| C913 | Δ 1-130-141-00 (B) | 0.01 630 V film |
| C914 | Δ 1-123-359-00 | 47 50 V elect (PX model) |
| C915 | Δ 1-161-734-00 (B) | 0.0022 400 V (AEP, UK model) |

Note: The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

| Ref. No. | Part No. | Description |
|----------|----------|-------------|
|----------|----------|-------------|

RESISTORS

All resistors are in ohms. Common 1/4 W carbon resistors are omitted. Refer to the list on page 29 for the their part numbers. (k Ω : 1000 Ω , M Ω : 1000 k Ω)

| | | |
|-----------|---------------------------|-------------------------------|
| R102, 202 | 1-244-853-00 (A) | 150 1/2 W |
| R103, 203 | 1-213-131-00 (A) | 100 1/2 W |
| R104, 204 | 1-244-921-00 (A) | 100 k 1/2 W |
| R105, 205 | | |
| R108, 208 | 1-214-084-00 (A) | 10 1/4 W (1 %) metal oxide |
| R109, 209 | 1-213-131-00 (A) | 100 1/2 W |
| R110, 210 | 1-244-913-00 (A) | 47 k 1/2 W |
| R111, 211 | 1-244-890-00 (A) | 5.1 k 1/2 W |
| R112, 212 | 1-244-865-00 (A) | 470 1/2 W |
| R117, 217 | Δ 1-212-982-00 (B) | 100 1/2 W fusible |
| R118, 218 | 1-214-130-00 (A) | 820 1/4 W (1 %) metal oxide |
| R119, 219 | 1-214-174-00 (A) | 56 k 1/4 W (1 %) metal oxide |
| R120, 220 | 1-214-142-00 (A) | 2.7 k 1/4 W (1 %) metal oxide |
| R121, 221 | 1-214-139-00 (A) | 2 k 1/4 W (1 %) metal oxide |
| R124, 224 | 1-244-913-00 (A) | 47 k 1/2 W |
| R125, 225 | 1-244-873-00 (A) | 1 k 1/2 W |
| R126, 226 | 1-244-921-00 (A) | 100 k 1/2 W |
| R127, 227 | 1-244-913-00 (A) | 47 k 1/2 W |
| R129, 229 | 1-244-892-00 (A) | 6.2 k 1/2 W |
| R131, 231 | 1-244-873-00 (A) | 1 k 1/2 W |
| R132, 232 | 1-244-942-00 (A) | 750 k 1/2 W |
| R141, 241 | 1-244-906-00 (A) | 24 k 1/2 W |
| R142, 242 | 1-244-908-00 (A) | 30 k 1/2 W |
| R143, 243 | 1-244-885-00 (A) | 3.3 k 1/2 W |
| R144, 244 | 1-244-861-00 (A) | 330 1/2 W |
| R151, 251 | 1-244-915-00 (A) | 56 k 1/2 W |
| R153, 253 | 1-244-857-00 (A) | 220 1/2 W |
| R157, 257 | 1-244-885-00 (A) | 3.3 k 1/2 W |
| R158, 258 | 1-244-857-00 (A) | 220 1/2 W |
| R164, 264 | Δ 1-212-988-00 (B) | 180 1/2 W fusible |
| R168, 268 | 1-217-156-00 (B) | 0.22 5 W wirewound |
| R170, 270 | Δ 1-212-988-00 (B) | 180 1/2 W fusible |
| R176 | 1-217-156-00 (B) | 0.22 5 W wirewound |
| R177, 277 | Δ 1-212-962-00 (B) | 15 1/2 W fusible |

Note: Les composants identifiés par un tramé et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: Circled letters (A to Z) are applicable to European models only.

| Ref. No. | Part No. | Description |
|------------|-------------------------------|--|
| R188, 281 | 1-244-829-00 (A) 15 | ½ W |
| R182, 282 | 1-244-825-00 (A) 10 | ½ W |
| R183, 283 | | |
| R184, 284 | 1-244-865-00 (A) 470 | ½ W |
| R311 | 1-206-656-00 (B) 470 | 2 W metal oxide (nonflammable) |
| R403 | 1-214-130-00 (A) 820 | ¼ W (1 %) metal oxide |
| R404 | 1-214-148-00 (A) 4.7 k | ¼ W (1 %) metal oxide (nonflammable) |
| R407 | 1-206-709-00 (B) 220 | 3 W metal oxide (nonflammable) |
| R411 | 1-214-130-00 (A) 820 | ¼ W (1 %) metal oxide |
| R412 | 1-214-418-00 (A) 4.7 k | ¼ W (1 %) metal oxide |
| R416 | 1-244-874-00 | 1.1 k ½ W carbon (US, Canadian model) |
| R416 | 1-244-880-00 (A) 3.3 k | ½ W carbon (AEP, UK, PX model) |
| R417 | 1-214-176-00 (A) 68 k | ¼ W (1 %) metal oxide |
| R418 | △1-205-598-00 | 33 5 W wirewound (US, Canadian model) |
| R418 | △1-205-599-00 (B) 75 | 5 W wirewound (AEP, UK, PX model) |
| R420 | △1-206-678-00 | 3.9 k 2 W metal oxide (nonflammable) (PX model) |
| R421 | △1-206-674-00 | 2.7 k 2 W metal oxide (nonflammable) (PX model) |
| R901 | △1-244-927-00 (A) 180 k | ½ W (AEP, UK, PX model) |
| R901 | △1-246-515-00 | 82 k ¼ W (US, Canadian model) |
| R902, 903 | △1-246-483-00 (A) 2.7 k | ¼ W |
| R904 | △1-246-507-00 (A) 27 k | ¼ W |
| R905 | △1-246-469-00 (A) 680 | ¼ W |
| R906 | △1-244-827-00 (A) 12 | ½ W |
| RT101, 201 | 1-224-251-XX (B) 4.7 k-B, | adjustable; dc balance |
| RT102, 202 | 1-224-254-XX (B) 47 k-B, | adjustable; dc bias |
| RT103, 203 | 1-222-254-XX (B) 47 k-B, | adjustable, meter level |
| RV101, 201 | 1-226-424-00 (D) 250 k-Z, | variable, BALANCE |
| RV102, 202 | 1-226-423-00 (E) 100/100 k-B, | variable, VOLUME |
| RV103, 203 | 1-226-125-00 (D) 100/100 k-C, | variable, TREBLE |
| RV104, 204 | 1-226-126-00 (E) 100/100 k-C, | variable, BASS |

SWITCHES

| | |
|--------|--|
| S1-1-5 | 1-552-698-00 (G) Pushbutton, AUX/TUNER/ PHONO/CARTRIDGE/LOW FILTER |
|--------|--|

Note: The components identified by shading and mark △ are critical for safety. Replace only with part number specified.

| Ref. No. | Part No. | Description |
|----------|--|---|
| S2 | 1-552-701-00 (E) Rotary-slide, | MONITOR |
| S3 | 1-552-701-00 (E) Rotary-slide, | TAPE COPY |
| S4 | 1-552-699-00 (E) Rotary-slide, | MODE |
| S5 | 1-552-466-00 (C) Pushbutton, | LOUDNESS |
| S6 | 1-552-700-00 (E) Rotary-slide, | SPEAKERS |
| S401 | △1-552-141-12 (E) Pushbutton, POWER (AEP, UK, PX model) | |
| S401 | △1-552-246-00 | Pushbutton, POWER (US, Canadian model) |
| VS | △1-552-963-00 | Voltage Selector (PX model) |

JACKS

| | | |
|------------|--|--|
| CNJ101-103 | 1-507-631-00 (E) Phono, 6 p; PHONO, TUNER, AUX | |
| CNJ201-203 | | |
| CNJ104-107 | 1-507-630-00 (C) Phono, 4 p; TAPE 1, 2 REC OUT 1, 2 | |
| CNJ204-207 | | |
| CNJ301 | 1-507-561-00 (C) HEADPHONES | |

MISCELLANEOUS

| | | |
|------------|--|---|
| CNP701 | △1-526-574-00 | Socket, AC OUTLET (US, Canadian model) |
| F401 | △1-532-325-00 | Fuse, T6.3A (PX model) |
| F401 | △1-532-350-00 (B) Fuse, T4A | (AEP, UK model) |
| F401 | △1-532-509-00 | Fuse, 6.3A (US, Canadian model) |
| F402 | △1-532-556-00 (B) Fuse, 2A; | thermal |
| RY301 | △1-515-302-00 (F) Relay | |
| RY302 | △1-515-278-00 | Relay (US, Canadian model) |
| RY302 | △1-515-347-00 (F) Relay | (AEP, UK, PX model) |
| RY901 | △1-515-349-00 | Relay (PX model) |
| TM301, 302 | 1-536-571-00 (C) Terminal, 4 p; SPEAKER (A, B) | |
| | △1-517-072-00 | Holder, fuse (US, Canadian model) |
| | △1-533-131-00 (A) Holder, fuse | (AEP, UK, PX model) |
| | △1-534-777-00 (E) Cord, power | (UK model) |
| | △1-534-817-00 (E) Cord, power | (AEP model) |
| | △1-534-993-00 | Cord, power (PX model) |
| | △1-551-510-11 | Cord, power (US, Canadian model) |

Note: Les composants identifiés par un tramé et une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Note: Circled letters (A to Z) are applicable to European models only.

ACCESSORIES AND PACKING MATERIALS

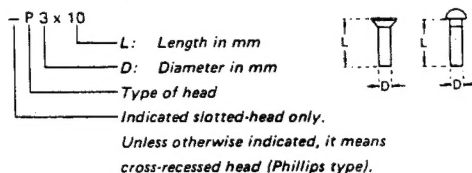
| <u>Part No.</u> | <u>Description</u> |
|-----------------|--|
| 1-526-565-11 | Adaptor, ac plug (PX1 model) |
| 3-429-126-00 | (B) Bag plastic |
| 3-558-465-00 | (B) Cushion |
| 3-701-630-00 | (A) Bag, plastic |
| 3-701-730-00 | (B) Bag, plastic |
| 3-770-656-11 | (D) Manual, instruction (AEP, UK, PX model) |
| 3-770-656-21 | Manual, instruction (US, Canadian model) |
| 3-794-233-21 | Card, instruction (US model) |
| 3-794-495-31 | Card, instruction; French (Canadian model) |
| 4-861-056-00 | (E) Carton |

1/4 WATT CARBON RESISTORS (A)

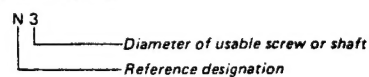
| Ω | Part No. | Ω | Part No. | Ω | Part No. | Ω | Part No. | Ω | Part No. | Ω | Part No. | Ω | Part No. |
|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|
| 1.0 | 1-246-401-00 | 10 | 1-246-425-00 | 100 | 1-246-449-00 | 1.0k | 1-246-473-00 | 10k | 1-246-497-00 | 100k | 1-246-521-00 | 1.0M | 1-246-545-00 |
| 1.1 | 1-246-402-00 | 11 | 1-246-426-00 | 110 | 1-246-450-00 | 1.1k | 1-246-474-00 | 11k | 1-246-498-00 | 110k | 1-246-522-00 | 1.1M | 1-210-814-00 |
| 1.2 | 1-246-403-00 | 12 | 1-246-427-00 | 120 | 1-246-451-00 | 1.2k | 1-246-475-00 | 12k | 1-246-499-00 | 120k | 1-246-523-00 | 1.2M | 1-210-815-00 |
| 1.3 | 1-246-404-00 | 13 | 1-246-428-00 | 130 | 1-246-452-00 | 1.3k | 1-246-576-00 | 13k | 1-246-500-00 | 130k | 1-246-524-00 | 1.3M | 1-210-816-00 |
| 1.5 | 1-246-405-00 | 15 | 1-246-429-00 | 150 | 1-246-453-00 | 1.5k | 1-246-577-00 | 15k | 1-246-501-00 | 150k | 1-246-525-00 | 1.5M | 1-210-817-00 |
| 1.6 | 1-246-406-00 | 16 | 1-246-430-00 | 160 | 1-246-454-00 | 1.6k | 1-246-578-00 | 16k | 1-246-502-00 | 160k | 1-246-526-00 | 1.6M | 1-210-818-00 |
| 1.8 | 1-246-407-00 | 18 | 1-246-431-00 | 180 | 1-246-455-00 | 1.8k | 1-246-579-00 | 18k | 1-246-503-00 | 180k | 1-246-527-00 | 1.8M | 1-210-819-00 |
| 2.0 | 1-246-408-00 | 20 | 1-246-432-00 | 200 | 1-246-456-00 | 2.0k | 1-246-580-00 | 20k | 1-246-504-00 | 200k | 1-246-528-00 | 2.0M | 1-210-820-00 |
| 2.2 | 1-246-409-00 | 22 | 1-246-433-00 | 220 | 1-246-457-00 | 2.2k | 1-246-581-00 | 22k | 1-246-505-00 | 220k | 1-246-529-00 | 2.2M | 1-210-821-00 |
| 2.4 | 1-246-410-00 | 24 | 1-246-434-00 | 240 | 1-246-458-00 | 2.4k | 1-246-582-00 | 24k | 1-246-506-00 | 240k | 1-246-530-00 | 2.4M | 1-244-754-00 |
| 2.7 | 1-246-411-00 | 27 | 1-246-435-00 | 270 | 1-246-459-00 | 2.7k | 1-246-583-00 | 27k | 1-246-507-00 | 270k | 1-246-531-00 | 2.7M | 1-244-755-00 |
| 3.0 | 1-246-412-00 | 30 | 1-246-436-00 | 300 | 1-246-460-00 | 3.0k | 1-246-584-00 | 30k | 1-246-508-00 | 300k | 1-246-532-00 | 3.0M | 1-244-756-00 |
| 3.3 | 1-246-413-00 | 33 | 1-246-437-00 | 330 | 1-246-461-00 | 3.3k | 1-246-585-00 | 33k | 1-246-509-00 | 330k | 1-246-533-00 | 3.3M | 1-244-757-00 |
| 3.6 | 1-246-414-00 | 36 | 1-246-438-00 | 360 | 1-246-462-00 | 3.6k | 1-246-586-00 | 36k | 1-246-510-00 | 360k | 1-246-534-00 | 3.6M | 1-244-758-00 |
| 3.9 | 1-246-415-00 | 39 | 1-246-439-00 | 390 | 1-246-463-00 | 3.9k | 1-246-587-00 | 39k | 1-246-511-00 | 390k | 1-246-535-00 | 3.9M | 1-244-759-00 |
| 4.3 | 1-246-416-00 | 43 | 1-246-440-00 | 430 | 1-246-464-00 | 4.3k | 1-246-488-00 | 43k | 1-246-512-00 | 430k | 1-246-536-00 | 4.3M | 1-244-760-00 |
| 4.7 | 1-246-417-00 | 47 | 1-246-441-00 | 470 | 1-246-465-00 | 4.7k | 1-246-489-00 | 47k | 1-246-513-00 | 470k | 1-246-537-00 | 4.7M | 1-244-761-00 |
| 5.1 | 1-246-418-00 | 51 | 1-246-442-00 | 510 | 1-246-466-00 | 5.1k | 1-246-490-00 | 51k | 1-246-514-00 | 510k | 1-246-538-00 | 5.1M | 1-244-762-00 |
| 5.6 | 1-246-419-00 | 56 | 1-246-443-00 | 560 | 1-246-467-00 | 5.6k | 1-246-491-00 | 56k | 1-246-515-00 | 560k | 1-246-539-00 | | |
| 6.2 | 1-246-420-00 | 62 | 1-246-444-00 | 620 | 1-246-468-00 | 6.2k | 1-246-492-00 | 62k | 1-246-516-00 | 620k | 1-246-540-00 | | |
| 6.8 | 1-246-421-00 | 68 | 1-246-445-00 | 680 | 1-246-469-00 | 6.8k | 1-246-493-00 | 68k | 1-246-517-00 | 680k | 1-246-541-00 | | |
| 7.5 | 1-246-422-00 | 75 | 1-246-446-00 | 750 | 1-246-470-00 | 7.5k | 1-246-494-00 | 75k | 1-246-518-00 | 750k | 1-246-542-00 | | |
| 8.2 | 1-246-423-00 | 82 | 1-246-447-00 | 820 | 1-246-471-00 | 8.2k | 1-246-495-00 | 82k | 1-246-519-00 | 820k | 1-246-543-00 | | |
| 9.1 | 1-246-424-00 | 91 | 1-246-448-00 | 910 | 1-246-472-00 | 9.1k | 1-246-496-00 | 91k | 1-246-520-00 | 910k | 1-246-544-00 | | |

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:



| Reference Designation | Shape | Description | Remarks |
|-----------------------|-------|---|--|
| SCREWS | | | |
| P | | pan-head screw | binding-head (B) screw for replacement |
| PWH | | pan-head screw with washer face | binding-head (B) screw and flat washer for replacement |
| PS PSP | | pan-head screw with spring washer | binding-head (B) screw and spring washer for replacement |
| PSW PSPW | | pan-head screw with spring and flat washers | binding-head (B) screw and spring and flat washers for replacement |
| R | | round-head screw | binding-head (B) screw for replacement |
| K | | flat-countersunk-head screw | |
| RK | | oval-countersunk-head screw | |
| B | | binding-head screw | |
| T | | truss-head screw | binding-head (B) screw for replacement |
| F | | flat-fillister-head screw | |
| RF | | fillister-head screw | |
| BV | | brazer-head screw | |

| Reference Designation | Shape | Description | Remarks |
|----------------------------|-------|--|---|
| SELF-TAPPING SCREWS | | | |
| TA | | self-tapping screw | ex: TA, P 3 x 10 |
| PTP | | pan-head self-tapping screw | binding-head self-tapping (TA, B) screw for replacement |
| PTPWH | | pan-head self-tapping screw with washer face | binding-head self-tapping (TA, B) screw and flat washer for replacement |
| PTTWH | | pan-head thread-rolling screw with washer face | binding-head (B) screw and flat washer for replacement |
| SET SCREWS | | | |
| SC | | set screw | |
| SC | | hexagon-socket set screw | ex: SC 2.6 x 4, hexagon socket |
| NUT | | | |
| N | | nut | |
| WASHERS | | | |
| W | | flat washer | |
| SW | | spring washer | |
| LW | | internal-tooth lock washer | ex: LW3, internal |
| LW | | external-tooth lock washer | ex: LW3, external |
| RETAINING RINGS | | | |
| E | | retaining ring | |
| G | | grip-type retaining ring | |